● smartcomputing.com

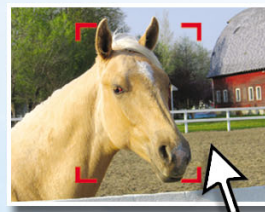# Smart Computing®
In Plain English

Digital Cameras
Recover From An Accidental **FlashMemory** *Format* p.98

Easy Ways To Troubleshoot Your PC

We Show You, Step-By-Step, How To:

- **Fix Printer & Printing Problems**
- **Resolve & Avoid System Crashes & Lockups**
- **Correct Audio & Video Issues**
- **Put An End To Internet Troubles**

The Best Photo-Editing Program p.20

We Check Out A Wireless Security Hardware & Software Combo p.13

REVIEWS
Eye Trouble? We Examine Two High-Visibility Keyboards p.18

IBM recommends Microsoft® Windows® XP Professional.

IBM ThinkPad R Series
(model not featured)

IBM rated #1 in tech support for desktops
and notebooks by PC Magazine readers.
PC Magazine 17th Annual Reader
Satisfaction Survey – July 14, 2004

Put a solid barrier between your wireless PC and thieves. Select IBM wireless ThinkPad® notebooks, like the ThinkPad X40 featured to the right, offer an added layer of data protection — a vaultlike combination of a built-in security chip and sophisticated data encryption software.[1] In fact, it's so advanced, it actually makes data unreadable if tampered with. And only IBM offers PCs with this level of security as a standard feature. Plus, with Intel® Centrino™ Mobile Technology and on-the-fly folder encryption, users can work wherever they please, knowing that their data will be protected. No matter who's lurking around. Instead of a welcome mat.

Embedded Security Subsystem. Only on a ThinkPad.

Contact your IBM Business Partner or go to **ibm.com**/shop/m540 to locate the nearest reseller.

IBM

IBM ThinkPad G41
Ultimate Value

Distinctive IBM Innovations:
• IBM Rescue and Recovery™ – One-button recovery and restore solution
• Access IBM – IBM help at your fingertips

System Features:
• Mobile Intel® Pentium® 4 Processor 532 (3.06GHz)[2] with HT Technology
• Microsoft Windows XP Home Edition[4]
• 14.1" XGA TFT display (1024x768)
• 128MB DDR SDRAM[5]
• 30GB hard drive[6]
• CD-ROM
• ComfortSlant keyboard
• EasyPivot base
• 1-yr system/battery limited warranty[8]

NavCode 288157U-M540

MODEL PRICED AT: **$999***

$36/mo for 36 months
SuccessLease for Small Business[19]
ServicePac® Service Upgrade:[9]
3-yr Depot Repair #30L9192 **$132**

IBM ThinkPad X40
Our thinnest and lightest

Distinctive IBM Innovations:
• IBM Embedded Security Subsystem 2.0
• IBM Rescue and Recovery™ – One-button recovery and restore solution

System Features:
• Intel® Centrino™ Mobile Technology
  • Intel® Pentium® M Processor ULV 713(1.10GHz)
  • Intel® PRO/Wireless Network Connection 802.11b/g[3]
• Microsoft Windows XP Professional
• 12.1" XGA TFT display (1024x768)
• 256MB DDR SDRAM
• 20GB hard drive
• Integrated Gigabit Ethernet and modem
• Legendary IBM full-size keyboard[10]
• Only .94" thin[11]
• 2.7-lb travel weight[12]
• 1-yr system/battery limited warranty[8]

NavCode 2386A4U-M540

THINK EXPRESS MODEL PRICED AT: **$1,499***

$54/mo for 36 months
SuccessLease for Small Business

Take a look at some of our latest models. And get state-of-the-art security.

(Monitor not included)

Why IBM ThinkPad Notebooks?
To make IBM ThinkPad® notebooks even more valuable, each one featured here can give you the efficiency, productivity and edge you need and comes with all the following ThinkVantage™ Technologies:

IBM Active Protection System:
Butterfingers unite! Select IBM ThinkPad notebooks now include airbag-like technology to help protect your hard drive from some damage caused by drops and jolts.

IBM Rescue and Recovery:
Lost your data because of a software crash or virus? Recover previously saved data in minutes with our one-button solution.

IBM Access Connections:
Switch between wired and wireless connections.

IBM Embedded Security Subsystem 2.0:[1]
Hackers and thieves, beware. Our combined hardware and software solution is designed to protect user data and keep it private.

Access IBM:
Get the help you need, when you need it. One button on your ThinkPad notebook brings you a world of resources and assistance.

IBM ThinkPad R51
System Features:
- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor 725 (1.60GHz)[2]
  - Intel® PRO/Wireless Network Connection 802.11b/g[3]
- Microsoft Windows XP Professional[4]
- 15" XGA TFT display (1024x768)
- 256MB DDR SDRAM[5]
- 30GB hard drive[6]
- Integrated Ethernet and modem
- IBM Ultrabay™ Enhanced CD-RW/ DVD-ROM combo
- IBM UltraConnect™ Antenna for increased signal strength
- 1-yr system/battery limited warranty[8]

NavCode 2883GKU-M540

THINK EXPRESS MODEL PRICED AT: **$1,299***

$47/mo for 36 months SuccessLease for Small Business[19]

IBM ThinkPad T42
System Features:
- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor 725 (1.60GHz)
  - Intel® PRO/Wireless Network Connection 802.11b/g
- Microsoft Windows XP Professional
- 14.1" XGA TFT display (1024x768)
- 32MB ATI Mobility RADEON 7500 graphics
- 256MB DDR SDRAM
- 30GB hard drive
- Integrated Gigabit Ethernet and modem
- IBM Ultrabay Slim DVD-ROM
- IBM UltraConnect Antenna for increased signal strength
- 1-yr system/battery limited warranty[8]

NavCode 2378R3U-M540

THINK EXPRESS MODEL PRICED AT: **$1,499**

$54/mo for 36 months SuccessLease for Small Business

ServicePac Service Upgrade[12]: 3-yr Depot Repair #30L9192 **$132**

IBM ThinkPad T42
IBM ThinkVantage Technologies:
- Integrated Fingerprint Reader - Your passwords at the tip of your finger.
System Features:
- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor 745 (1.80GHz)
  - Intel® PRO/Wireless Network Connection 802.11b/g
- Microsoft Windows XP Professional
- 15" XGA TFT display (1024x768)
- 32MB ATI Mobility RADEON 7500 graphics
- 512MB DDR SDRAM
- 40GB hard drive
- Integrated Gigabit Ethernet and modem
- IBM Ultrabay Slim CD-RW/DVD-ROM combo
- IBM UltraConnect Antenna for increased signal strength
- 3-yr system/1-yr battery limited warranty[8]

NavCode 2379R8U-M540

THINK EXPRESS MODEL PRICED AT: **$1,999**

$72/mo for 36 months SuccessLease for Small Business

ServicePac Service Upgrade: 4-yr Onsite Repair/9x5/Next Business Day Response #69P9198 **$299**

IBM ThinkPad X40
IBM ThinkVantage Technologies:
- Longest standard battery life of any leading-brand Ultra portable[21]
System Features:
- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor ULV 738 (1.40GHz)
  - Intel® PRO/Wireless Network Connection 802.11b/g
- Microsoft Windows XP Professional
- 12.1" XGA TFT display (1024x768)
- Intel Extreme Graphics 2
- 256MB DDR SDRAM
- 40GB hard drive
- Integrated Gigabit Ethernet and modem
- Legendary IBM fullsize keyboard[14]
- Up to 7.0-hr Li-Ion battery[15]
- 1-yr system/battery limited warranty[8]

NavCode 2386E9U-M540

THINK EXPRESS MODEL PRICED AT: **$1,749**

$63/mo for 36 months SuccessLease for Small Business

ServicePac Service Upgrade: 3-yr Onsite Repair/9x5/Next Business Day Response #30L9195 **$243**

IBM ThinkPad X40 Solution Pack
IBM ThinkVantage Technologies:
- Longest standard battery life of any leading-brand Ultra portable[21]
System Features:
- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor ULV 738 (1.40GHz)
  - Intel® PRO/Wireless Network Connection 802.11b/g
- Microsoft Windows XP Professional
- 12.1" XGA TFT display (1024x768)
- 256MB DDR SDRAM
- 40GB hard drive
- Integrated Gigabit Ethernet and modem
- Up to 7.5-hr Li-Ion battery
- 3-yr system/1-yr battery limited warranty[8]
Accessories Included:
- ThinkPad X4 UltraBase Dock
- IBM Ultrabay Slim CD-RW/DVD-ROM combo

NavCode 2382ECU-M540

THINK EXPRESS MODEL PRICED AT: **$2,249**

$81/mo for 36 months SuccessLease for Small Business

ServicePac Service Upgrade: 5-yr Onsite Repair/9x5/Next Business Day Response #69P9200 **$449**

Why IBM ThinkCentre PCs?
Only IBM offers these features to protect your users, connect them, and keep them working. Each ThinkCentre™ desktop featured here can give them the efficiency, productivity and edge they need with the following ThinkVantage Technologies:

Rescue and Recovery:
Lost your data because of a software crash or virus? Recover previously saved data in minutes with our one-button solution.

Access IBM:
Get the help you need, when you need it. One button on your ThinkCentre desktop brings you a world of IBM resources and assistance.

IBM ThinkCentre A50 Tower form factor
IBM ThinkVantage Design:
- Toolless cover and hard drive removal
System Features:
- Intel® Pentium® 4 Processor with HT Technology 3GHz
- Microsoft Windows XP Professional
- Intel® Extreme Graphics 2
- 256MB DDR PC3200[5]
- 40GB hard drive • CD-ROM
- 6 USB 2.0 Ports (2 on front)
- IBM Preferred Pro Keyboard
- IBM USB Optical Wheel Mouse
- Integrated SoundMAX Cadenza audio solution
- Integrated 10/100 Ethernet
- Norton AntiVirus™ with 90 days of virus definition updates
- Lotus® SmartSuite® Millennium license
- 1-yr parts limited warranty with 1-yr limited onsite service[17]

NavCode 814821U-M540

THINK EXPRESS MODEL PRICED AT: **$639**

$23/mo for 36 months SuccessLease for Small Business

NavCode® Get the latest pricing and information fast. Use NavCode on the phone or on the Web.

IBM recommends Microsoft® Windows® XP Professional.

(Monitor not included)

IBM ThinkCentre A50
Ultra small form factor

System Features:

- Intel® Pentium® 4 Processor with HT Technology 3GHz
- Microsoft Windows XP Professional
- Intel® Extreme Graphics 2
- Ultra small form factor — 74% smaller than a standard IBM desktop[16]
- 256MB DDR PC3200
- 40GB hard drive • CD-ROM
- Gigabit-Ethernet Integrated
- Norton AntiVirus with 90 days of virus definition updates
- Lotus SmartSuite Millennium license
- 1-yr limited warranty with 1-yr limited onsite service[17]

NavCode 809021U-M540

THINK EXPRESS MODEL
PRICED AT: **$759**

$27/mo for 36 months
SuccessLease for Small Business

ServicePac Service Upgrade:
3-yr Onsite/9x5/Next Business Day
Response #54P1861 **$132**

IBM ThinkCentre A51p
Tower form factor (model not shown)

System Features:

- Intel® Pentium® 4 Processor 530 with HT Technology
  - Processor speed 3GHz
  - 800MHz FSB
- Microsoft Windows XP Professional
- Intel® Graphics Media Accelerator 9000
- 256MB DDR2 PC2-3200
- 40GB hard drive • CD-RW
- Gigabit Ethernet-integrated
- IBM Embedded Security Subsystem 2.0
- 1-yr limited warranty with 1-yr limited onsite service[17]

NavCode 842721U-M540

THINK EXPRESS MODEL
PRICED AT: **$799**

$29/mo for 36 months
SuccessLease for Small Business

ServicePac Service Upgrade:
3-yr Onsite/9x5/4-hr Response
#54P1862 **$239**

IBM eServer xSeries® 226

System Features:

- IBM ServeRAID™-7e features integrated RAID-0 or -1 standard
- IBM Director and optional Remote Supervisor Adapter II for proactive remote management for distributed environments
- Intel® Xeon™ Processor 2.80GHz
- 1GB/16GB Std/Max
- Integrated Dual Channel U320 SCSI
- Two 36.40GB Hot Swap SCSI HDDs
- Gigabit Ethernet
- 1-yr limited warranty with 1-yr limited onsite service[17]

NavCode 86480EU-M540
PRICED AT: **$1,919**

ServicePac Service Upgrade:
3-yr Onsite/9x5/Next Business Day
#96P2248 **$229**

IBM eServer xSeries® 236

System Features:

- Externally visible Light Path diagnostic panel
  - Displays information about a component without interrupting system operation
  - Visible without removal of system covers
- Integrated System Management Processor
  - Continuously monitors your system, notifying you of potential system failures or changes
- Intel® Xeon™ Processor 2.80GHz
- 1GB/16GB Std/Max
- Integrated Dual Channel U320 SCSI
- Three 73.4GB Hot Swap SCSI HDDs
- ServeRAID™ 7k SCSI adapter
- Gigabit Ethernet
- 3-yr limited warranty with 1-yr onsite service[17]

NavCode 88410EU-M540
PRICED AT: **$3,879**

ServicePac Service Upgrade:
3-yr Onsite/24x7x4 hour
#21P2084 **$689**

IBM eServer BladeCenter

System Features:

- Flexible - full performance and manageability of traditional rack optimized platforms
- Infrastructure integration - help lower TCO and increase control
- Simplify - easy to deploy, easy to install, easy to manage

HS20
- Intel® Xeon™ 2.80Ghz/533Mhz FSB
- 40GB IDE/2GB DDR2 PC2100
- 3-year limited warranty[8]

NavCode 8832LEX-M540
EXPRESS MODEL PRICED AT: **$2,589**

BladeCenter Chassis
- 7U rack mount chassis—up to 14 blades per chassis
- 2000W power
- Cisco Ethernet switch module

NavCode 86773EU-M540
EXPRESS MODEL PRICED AT: **$7,289**

$243/mo for 36 months
SuccessLease for Small Business

ServicePac Service Upgrade:
3-yr Onsite/9x5/4-hr Response
HS20 #69P9517 **$279**
BladeCenter Chassis #41L2736 **$600**

IBM eServer xSeries® 336

System Features:

- Leading performance with Intel® Extended Memory 64 Technology - 32 and 64bit simultaneous computing
- High Availability with redundant power and hot swap fans - Calibrated Vectored Cooling enables density and performance
- Simple Management with on board service processors and optional remote management support - take control of your server environment
- Intel Xeon 2.80Ghz/800Mhz FSB
- Two 73GB SCSI/2GB DDR2 PC3200

NavCode 88370EU-M540
EXPRESS MODEL
PRICED AT: **$3,349**

$112/mo for 36 months
SuccessLease for Small Business

ServicePac Service Upgrade:
4-yr Onsite/9x5/4-hr Response
#69P9243 **$609**

Contact your IBM Business Partner or go to **ibm.com**/shop/m540 to locate the nearest reseller.

Smart Computing

In Plain English

smartcomputing.com

THIS MONTH'S COVER STORY:

Troubleshoot Your PC

Running a full virus scan on your hard drive(s) is a good idea if you encounter a crash you can't explain.

To change your printer software settings, click Start and Printers And Faxes or click Printers And Other Hardware from the Control Panel.

Reviews

Editor's Note

For some reason, thinking about troubleshooting reminds me of Ralph Waldo Emerson. Maybe because old Ralph wrote so eloquently about the need for people to learn to be self-reliant.

We computer users know all about self-reliance. Of course, there was a time when we didn't really *need* to be quite so self-reliant when it came to our machines. In the first place, computers were—as far as we were concerned—pretty simple: You turned the machine on, typed the name of the program you wanted to run, and that was about it. When it was time to quit, you exited the application and shut off the computer. (You may have typed **park** first, to lock the drive head in place.) In those days, computers were fairly trouble-free mainly because they just didn't *do* that much. (And partly because they were not connected to the Internet and therefore didn't have to deal with the sorts of security issues that are common today.)

In the second place, if you did have a problem, decent tech support was only a phone call away. You dialed one number and spoke to an actual live human being who transferred you directly to a techie. (We always imagined him—and it was almost always a him—sitting in a messy office, surrounded by computers, wires, disassembled monitors and drives, balancing two or three keyboards on his lap, and almost buried beneath a mound of Pepsi cans and Baby Ruth wrappers. In many cases, this was an accurate depiction.) Almost every time, that techie knew the solution to your problem.

Things are different now. Good, free tech support (except perhaps through *Smart Computing's* online Tech Support Center) is simply not that easy to find, so you've learned more than you ever wanted to know about how to keep your PC running. Well, this issue should be a good reference for you. We cover as much troubleshooting info as we can reasonably cram into the magazine, and we try to do it in a way that makes it interesting and understandable, rather than confusing and frightening. Let us know how we did, and what other sorts of troubleshooting info you'd like to see covered for which we might not have had room this time.

ROD SCHER, PUBLICATION EDITOR

Now Available On Newsstands . . .

Computer Power User · Keep Your Data Safe: The Scoop On Storage
The state of computer storage is often overlooked, but when it relates to your data, it shouldn't be. Our February issue looks at where storage is at today and where's it's going tomorrow.

PC Today · Have Windows Your Way
Windows makes it easy when it comes to installing and troubleshooting new hardware. Whether the device at hand is a printer, digital camera, portable audio player, or networking gear, this month's *PC Today* will help you get started using it.

CE Lifestyles · March
This month's issue of *CE Lifestyles* features a roundup of mobile phones and highlights how to use them in everyday life. Also see how to harmonize your home electronics with feng shui, and find out if those photo kiosks are worth the trip to the market.

Reference Series · PC Modder V2.0
You don't have to settle for a beige box and so-so performance in a PC. Use this issue to build a benchmark-busting, attention-getting monster. Our three dozen overclocking Case Studies will get you started with the right CPU, motherboard, and video card, and then our cooling and cutting articles will show you how to package it all together in the perfect case.

Corrections/Clarifications
System 12 Self-Improvement Interactive: Smoke Free! software (described on pages 42 and 43 of the January issue) has a new Web site: http://www.sys12smokefree.com. Also, on page 27 of our February issue, we included a picture of a SanDisk Digital Audio Player instead of the SanDisk MobileMate portable media reader.

Sandhills™ Publishing

Compiled by Christian Perry
Illustrated by Lindsay Anker
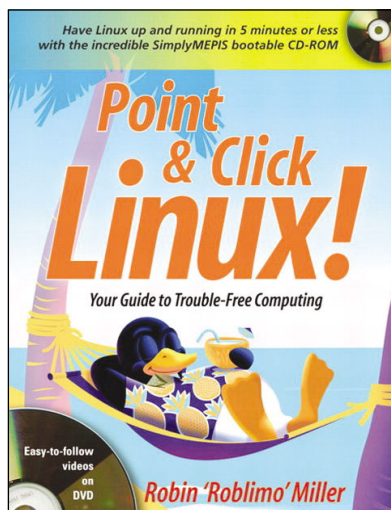
Is Linux Primed For Prime Time?

Forget horror movies; if you want to scare the bejeezus out of a typical Windows user, tell him you replaced his Windows OS (operating system) with Linux and watch as his eyes widen in fear and lips tremble. At the very least, you'll see a certain degree of panic, but that's precisely the response that Robin "Roblimo" Miller hopes to eliminate with "Point & Click Linux!," a new book that introduces Linux to even the most basic Windows users.

Although Linux continues to thrive in its own enthusiast community, it has yet to make mainstream strides in the desktop realm, where Windows still reigns supreme. Yet the stigma attached to Linux—that it gives new meaning to the term "user-*un*friendly"—grows more unfounded each year as developers work to simplify its user interfaces and further increase compatibility with Windows programs.

Another hurdle is the tendency of Linux books, guides, and tutorials to address readers with the assumption they already know a thing or two about Linux. Miller, on the other hand, has written a book that assumes next to nothing, which makes the approach to Linux much easier.

The book includes a fully bootable CD-ROM containing the SimplyMEPIS Linux distribution, considered one of the easiest-to-use distributions available today, and a DVD with short video tutorials that show readers exactly how to perform some of the basic instructions described in the text. Also included is a collection of useful productivity, entertainment, and other software intended to make you feel right at home with your usual computing needs.

For Windows users who want to experiment, "Point & Click Linux!" delivers the goods in the easiest fashion to date. In fact, thanks to the SimplyMEPIS' logical KDE (K Desktop Environment) interface and Miller's unassuming, thorough writing and videos, Linux can easily function as a full Windows replacement without much trouble.

But be warned: Miller writes that using Linux could spawn unintended effects. "You will be cast as the local computer expert forevermore," he says. ∎

We'll Pay For Fingerprint Security

Most consumers are willing to pay plenty to add fingerprint biometrics to their electronic devices, cites a recent study sponsored by AuthenTec. The survey of 2,049 U.S. adults also shows that most consumers would use biometrics to replace their PC and Internet passwords.

Booming Biometrics

As shown by AuthenTec's recent study, consumers want to secure their computers and mobile devices with fingerprint biometrics. Here are some results from the study:

71% would pay for biometrics for their mobile phones

63% would pay for biometrics for their PCs

60% would replace wallet with biometrically enabled mobile phone

43% would pay for biometrics to replace computer or Internet passwords

29% would pay more than $25 to add biometric security as an extra feature
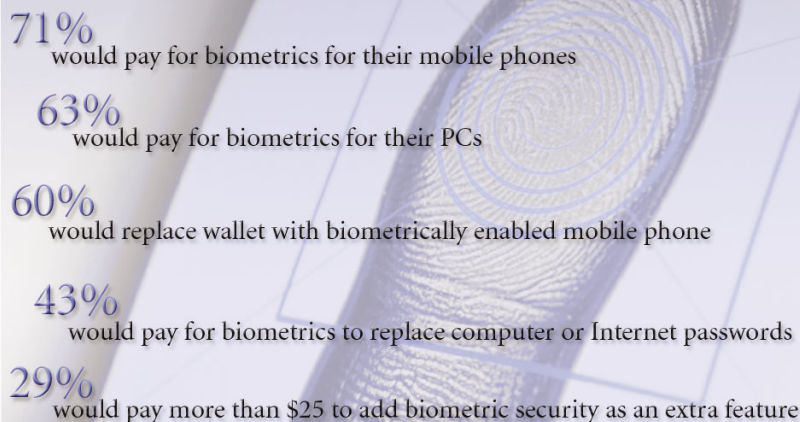
Do The Rondo Roundup

The content on the CDs and DVDs we burn might be fun and exciting, but organizing those discs often borders on tedious and frustrating. One of the most popular storage formats, the disc book, is cumbersome to peruse and difficult to reorganize.

Atlantic (http://www.atlantic-inc .com) might have a solution to the disc-storage blues with its innovative Rondo storage system.

Featuring removable sleeves that you can transfer between storage-bin drums and portable wallets, the Rondo system lets you organize your discs with ease.

In particular, Atlantic's $29.99 100-disc Rondo drum offers a sleek option for storing discs that's easy to use and manipulate. Although it consumes a hefty amount of desktop real estate, the drum is extremely easy to use: Just pop open the spring-loaded lid and page through the discs until you find the one you need. To reorganize the discs or remove a sleeve to transfer it into the included 20-CD wallet, simply pop a sleeve from the snap-on base. ❚

BitTorrent On The Ropes

Regarding BitTorrent as a mainstay for your peer-to-peer downloads may not be a great idea, especially if MPAA (Motion Picture Association of America) has anything to say about it.

In December 2004, MPAA took action against more than 100 servers using BitTorrent and eDonkey, which led to the demise of one of the world's largest file-swapping-tracker sites, SuprNova .org. Although sites such as SuprNova.org don't actually host pirated content, their indexing services provide links and tracking information for pirated movies, software, and other content.

BitTorrent has enjoyed immense popularity in recent years, thanks to peer-to-peer technology that trades pieces of downloaded files with other peers until downloads are complete, at which point a downloaded file can serve as a seed to help others download the file. Tracker servers keep tabs on the torrent, or file, including information on how many people are currently uploading or downloading it.

These latest MPAA legal actions differ from previous notorious moves, which targeted individuals instead of major servers. ❚

Up The Wrong Tree

Broderbund published Family Tree Maker, the most popular genealogy program, for years. But now that Encore owns the publishing rights, the next release, Family Tree Maker 2005, includes significant changes. One is its tight integration with Ancestry.com, a subscription-based site. The Deluxe edition includes a one-year subscription to Ancestry.com's U.S. Records Collection, but other databases require additional payments ($50 for OneWorldTree, $39.95 for U.S. Federal Census Collection, $39.95 for U.K. and Ireland Collection, $49.95 for Historical Newspapers, and $39.95 for Family & Local Histories).

If you don't use the Web Search features, you'll still find other improvements, including easier navigation between generations and new Bookmarks and History buttons that let you quickly jump to a record. What hasn't changed is that FTM's source-citation tools are still lacking; importing our GEDCOM (GEnealogical Data COMmunications) file resulted in 68 errors.

If you subscribe to Ancestry.com's databases, FTM will help you sift through search results. But if you aren't ready to spend up to $170 on subscription-based services, the $69.95 price tag for FTM is high, especially when there are less expensive programs, such as RootsMagic ($29.95; http://www.rootsmagic .com), that have better source-citation and record-comparison tools. ❚

Family Tree Maker 2005 Deluxe

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http://www.encoreusa.com

|||||| Bore Friends With Home Videos . . . Now Online |||||||||||||||||||||||||||||||||||

Numerous outlets exist for sharing your digital pictures, but when it comes to finding an online resource for sharing your home videos, you're more apt to find a needle in a haystack—until now, that is.

Touting its service "as simple as 1-2-3," Digital Silo (http://www.digital silo.com) delivers HVOD (Home Video On Demand), which converts your home videos into broadcast-quality streaming media. Once converted, friends and family can view the media on the Internet using any broadband-enabled computer, Media Center PC, or MSN TV2 connected to a television. The simplicity of the Digital Silo service might make you wonder why someone didn't think of it before.

To begin the HVOD process, sign up at the company's Web site and select a video package. For example, when you sign up for a membership, you can watch and store up to 240 hours of home videos for only $9.95 per year. Of course, there are other fees to watch out for, such as the $44.95 per hour cost of converting video from videotapes to Internet viewing and archiving.

Within days after purchasing a video plan, you'll receive instructions and an empty box, which you can use to mail your tapes, film reels, and/or DVDs to Digital Silo. Within a week or so, Digital Silo will convert your video to several digital formats, including MPEG-4, Windows Media, RealVideo, and QuickTime, and perform any necessary enhancement and color correction.

At this point, you and others can access your videos at a secure guest Web site. In addition to the multiple formats available for streaming, you also can download high-resolution versions for editing. Digital Silo returns your original videotapes and/or other media, and if you choose, you can receive copies of your tapes on DVDs or DV media. ▮

Duly Quoted

"If I'm going to the library, chances are somebody hasn't paid a librarian 100 bucks to point me to a particular book."

—Beau Brendler, director of Consumer Reports' WebWatch, comments on the tendency of search engines to accept payments for inclusion in their search indexes. (Source: Associated Press)

R E V I E W

ZoomTel X5v

$99
Zoom Technologies
(617) 423-1072
http://www.zoom.com

Put Your Voice On VoIP

Long-distance telephone competition continues to have positive effects on pricing plans, but if you want to save even more, VoIP (Voice over IP [Internet Protocol]) is always an option. We took a look at Zoom's new $99 ZoomTel X5v DSL (Digital Subscriber Line) modem-router-firewall combination, which also performs VoIP duties in tandem with the company's Global Village service.

New Products Hardware

Compiled by Kylee Dickey

Quick takes on the latest hardware and software to hit the market at press time. Manufacturers' and publishers' release dates are subject to change, so some products may not be available when you read this. (Logos indicate products compatible with either Windows or Macintosh only.)

Bluetooth GPS Navigation System (GBGPS201) IOGEAR $299.95	(866) 946-4327; (949) 453-8782	www.iogear.com	*Receive driving directions through a compatible Bluetooth-enabled device*
DGL-4300 Gamer Lounge Gaming Router D-Link $179.99	(800) 326-1688; (949) 788-0805	www.dlink.com	*Wireless router that automatically gives online games priority over other applications for network bandwidth*
DHS 2 Alienware $1,399 (for base configuration)	(800) 254-3692; (305) 251-9797	www.alienware.com	*Low-profile media-center PC with built-in A/V connectors*
MediaCenter MCE 200 Deluxe Kworld $99	sales@kworld.com.tw	www.kworldcomputer.com	*PCI card that adds video-capture, remote-control, TV-tuner, and other multimedia functions to a PC*
Multimedia Center Audio/USB Hub (PA3390U-1MPM) Toshiba $129.99	(800) 316-0920; (949) 583-3000	www.toshiba.com	*Connect a notebook PC to your home entertainment system*
SD-USBean C-guys $25	(408) 252-8800	www.c-guysusa.com	*Hi-Speed USB-compatible SD card reader that supports 15MBps data transfers*
SMC-BT10 EZ Connect Bluetooth USB Adapater SMC $39.99	(800) 762-4968	www.smc.com	*Turn your desktop or notebook computer into a Bluetooth-compatible device*
Wireless Network Starter Kit (USR5470) U.S. Robotics $99.95	(888) 232-8937; (847) 874-2000	www.usr.com	*An 802.11g wireless USB adapter and an 802.11g wireless router with only three steps to install*

Installing and configuring the X5v to work with your existing DSL connection is relatively trouble-free, particularly with Windows XP. Although you'll need to specify a new Internet connection, WinXP will use your existing connection to integrate the new modem. Per the instructions, we stipulated ISP-specific settings using the bundled setup software and a chart in the manual, but the modem refused to recognize the settings the first two times (the third time was a charm). After the setup, the modem worked flawlessly, performing equally as well as our existing Westell modem.

After connecting a phone to the X5v's phone jack and setting up an account on http://www.globalvillage .com, you can make VoIP calls using the included 10 free minutes of VoIP service. Because Global Village is meant to save you long-distance bucks, you'll probably need a two-line phone or second phone for regular POTS (Plain Old Telephone Service). In our tests, all VoIP calls were clear and strong, and in some cases, served better signals than those available using POTS. Keeping track of your calls via the Global Village site also is a nice touch, letting you see missed calls in addition to other outgoing and incoming calls. After your 10-minute trial, you'll pay 2.9 cents per minute or $24.95 per month for unlimited calls.

If you already have a DSL modem and router, you can spend less than half of the X5v's cost to obtain VoIP service. But if you need a DSL modem, router (or both), and VoIP service, the $99 price tag isn't a bad deal. ▮

New Products Software

AudioCommander 2.0 Mystik Media $64.95	(800) 819-7430; (910) 270-5251	www.mystikmedia.com	*Convert audio files to new formats, selecting the frequency, channel, and bit rate*
Backup Platinum 2.0 SoftLogica $67	(888) 364-6797	www.backup-platinum.com	*Encrypt, compress, and back up files to hard drives, CDs, DVDs, FTP servers, and/or LANs*
CleverCrypt Enhanced 1.5 Quantum Digital Security $29.95	sales@qdsecurity.com	www.qdsecurity.com	*Choose from 256-bit to 1,280-bit encryption for your files*
GraphicConverter X/Classic 5.4 Lemke Software $35 ($30 for download)	lemkesoft@aol.com	www.lemkesoft.com	*Image-editing software with support for AppleScript and batch file conversions*
Macro Scheduler 7.3 MJT Net $59.95	(360) 519-5383	www.mjtnet.com	*Create macros to automate tasks in Windows applications*
PDF2Office 2.0 Professional Edition Recosoft $129	info@recosoft.com	www.recosoft.com	*Open, edit, create, and convert PDF files*
Professor Franklin's Instant Photo Effects 2.0 Streetwise Software $59.99	(800) 743-6765; (310) 829-7827	www.swsoftware.com	*Add frames, photo edges, and artistic or lighting effects to your digital images*
Ultra Recall Kinook Software $49	(719) 481-4128	www.kinook.com	*Save information about and links to the data you need, including documents, online files, and Web pages*

Share & Share Alike

O ne of the most useful technological advances for the home computer user is the wireless network. It came at a good time—it seems everyone is getting into the computer arena these days. Kids are finding computers indispensable for homework, as well as entertainment. Dad is tired of giving up his surfing time, and Mom is thinking the only way she can get online is to get her own PC. A wireless network solves everyone's problem by allowing several computers to share an Internet connection, access common files, and use one printer and/or scanner. All this can be done sans tearing up walls.

I am often asked two questions about wireless networks. First, people are curious as to what equipment they need. And second, they question the security of wireless networks. This TechMates article will address both issues, in part by proposing an effective hardware and software duo.

Connect The Dots

To set up a network, you'll need a router and a WAP (wireless access point). These items are available as one piece of equipment, and the result is generally referred to as a wireless router. Check the prices when you decide what to buy. For instance, the D-Link DI-624 wireless router is $85. For my testing, however, I used a router I already had and connected it to an 802.11g D-Link WAP (DWL-2100AP; $109). The router is connected to my cable modem. The access point and my computer both connect to the router. A D-Link wireless Cardbus Adapter card (DWL-G650; $59) provided the wireless access for my laptop. The card slides into the PC Card slot on the side of the laptop. If you are networking two or more desktop computers, you can purchase a wireless PCI (Peripheral Component Interconnect) adapter that installs easily into a desktop computer.

I installed the drivers on each computer using the wizard D-Link provides. All went well, and I was up and running. I don't, however, want to make it sound too easy. Our good friend Murphy (if it can go wrong, it will) likes to hang around wireless networks, which is one of the reasons that I like D-Link equipment. D-Link provides 24-7 technical support, and my experiences with its support have all been pleasant and successful. D-Link also has a network configurator on its Web site, which helps you choose equipment. Head to http://www.dlink.com and click Configurator.
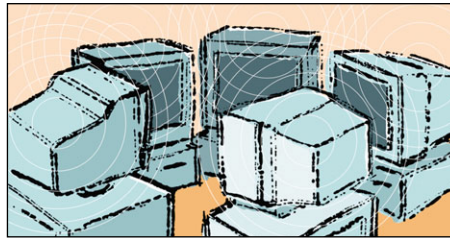
DWL-2100AP Wireless Access Point
$109
D-Link
http://www.dlink.com

DWL-G650 Cardbus Adapter
$59
D-Link
http://www.dlink.com

LucidLink Security Software, 3-User Home Office
$99
Interlink Networks
(734) 821-1278
http://www.lucidlink.com

Safety First

Now for the security question. Wireless networks are notorious for weak security. When the first wireless version 802.11b came out, it used a type of security called WEP (Wired Equivalent Privacy) that became synonymous with the word "WIMP" because it could be broken into so easily. Stronger security called WPA (Wi-Fi Protected Access) has since been implemented.

Yet, with software called LucidLink ($99; http://www.lucidlink.com), you can beef up the security of your wireless network. It doesn't require security or networking expertise. Simply install the software on your PCs. The main computer gives permission for your other computer(s). The interface is fairly intuitive. In the version I tried (2.0), I had to set up the IP (Internet Protocol) address of the main LucidLink computer. This requires a bit of knowledge about things such as IP addresses and subnets. In the next few months, however, the company is planning on releasing a version that will find the IP address and configure the equipment. If you don't know much about IP addresses or don't want to bother with this, watch for the new version. LucidLink only works with certain D-Link and Linksys wireless equipment, so check for compatibility before you buy your hardware.

Without getting too technical, Lucid-Link uses a RADIUS security server that is well-known for its strength and stability. I subjected my LucidLink network to several security tests, and it passed with flying colors. The fact that the ICSA Labs, a highly regarded security-testing agency, gave LucidLink a thumbs-up gave me great confidence in the product.

If you want a wireless network, LucidLink is software you should investigate. Even average home users who keep sensitive financial and personal files on their PC should consider improving the security on any wireless networks they use. ▐▌

BY SANDY BERGER

Sandy Berger *is a nationally respected technology author and computing expert. Sandy's aim is to convey to others in easy-to-understand language what they need to know to take advantage of today's technology. Visit her at* **http://www.compukiss.com** *or email her at* SandyB@smartcomputing.com.

New Kid On The Block

Alienware Takes On The Giants

Joshua Gulick

Send your comments to joshua@smartcomputing.com

Desktop computers make for a tough business these days. Some manufacturers have squeezed into each other (HP and Compaq, Gateway and eMachines), while others have been squeezed out. Even IBM, one of the desktop's pioneers, recently sold its entire computer business to Chinese builder Lenovo. In a market that pressures companies to lower prices, the big players elbow each other for the high-volume, low-margin value desktop sales while a half-dozen small- and medium-sized businesses cater to luxury system buyers. Quite a few people fall between the two extremes, and the big players get most of these customers, as well.

Meanwhile, these smaller PC builders compete actively in their own market-within-a-market. Wallets are much larger here (system prices generally start around $2,000 but can easily break $10,000), but customers want cutting-edge machines and weigh aesthetics heavily when shopping. Builders must excite their customers, so artistic and technical innovations drive this niche market.

But sub-$1,000 machines sport neither fancy paint jobs nor cool new features, so I was surprised to see that Alienware, a major player in the custom-built/gaming market, offers a value desktop: the Bot. We recently saw Dell cross the gamer PC line with real success. But Dell can afford a little risk. Can Alienware?

Bot
$966
Alienware
(800) 254-3692; (305) 251-9797
http://alienware.com

What's In A Name?

Alienware has made a name for itself in the gaming world, and it offers high-end workstations, but—in my limited experience—the name recognition doesn't extend beyond these two geeky markets. When I mentioned to family members and non-techie friends that Alienware released a value PC, I received the same blank stares I get from them when I compare motherboard chipsets.

I didn't, however, get blank stares when I first told my geeky friends that Dell released a gaming PC. And that distinction is why, despite the builder's success in the custom-built market, I can't predict a slam-dunk victory for Alienware's Bot. My nongeeky friends and family are customers who buy sub-$1,000 desktops. They don't know (or want to know) much about their computer's components, so they rely on manufacturer reputations when they shop.

Let's Get Technical

However, Alienware isn't an unknown—far from it. Thanks to word of mouth (and here I'm thinking of geeky, teenage mouths who already own Alienware PCs and can recommend them), Alienware might just make itself a household name. Once it crosses this gap, it needs to differentiate itself from the good reputations—it needs to offer serious bang for the buck. And here the Bot comes through.

At $789, the basic Bot is a good deal. It includes a reasonably speedy 2.53GHz Intel Celeron D processor, 256MB of memory, a DVD-ROM, and a quality 80GB hard drive. (My $966 version included a 3GHz Intel P4 and 512MB of RAM.) The PC also includes the new PCI Express slots, integrated video, and Intel's High Definition audio codec, which supports 5.1 speakers. Those are decent specs, but there's more. This system is tiny. It's only 13.8 inches high and a mere 5.35 inches wide. That's only slightly wider than an optical drive.

Not A Bad Bot

The Bot isn't a video game champ, but you can add a PCI Express-based video card when you upgrade. Besides, it's an inexpensive computer, and it performs those home-use tasks just fine. The system played my "The Matrix" DVD flawlessly and produced quality sound, both when I watched the DVD and when I listed to digital music. It's not the quietest PC around, but it passed my litmus test (it didn't drive me crazy).

I don't know whether the Bot will make it in the rough-and-tumble world of inexpensive PCs, but as for its chances, I think Alienware put its best foot forward. ▮▮

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Chad Denton

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The floppy diskette was a grand thing in its day. Most files fit on a single disk, and the ubiquity of the floppy meant you could access those files from virtually any PC. With pictures, music, and video crowding our 120GB hard drives, the floppy's 1.44MB capacity makes it virtually worthless for anything more than a boot disk.

With floppy drives disappearing from some systems, it's safe to say that USB (Universal Serial Bus) devices are more widespread than floppy drives these days. A number of companies are trying to replace the floppy drive with a variety of external USB storage devices that, like the floppy, let you access your files almost anywhere but, unlike the floppy, offer enough capacity to actually be useful.

5GB In Your Pocket

Seagate's USB 2.0 Pocket Drive packs a 5GB 3,600rpm hard drive into a package roughly the size of a hockey puck (only about 25% thinner). Weighing 2.2 ounces, the drive is larger and heavier than flash drives that fit on your keychain. Although flash memory is also more rugged, it's also more expensive. Seagate can offer more storage for a lot less money.

I loved the design, which consisted of a black inner core and a gray outer shell with two cutouts on each side. Rotate the inner core to reveal the USB plug and continue rotating the inner shell to unwind the cable. My only complaint with the design is the cable isn't long enough to let the drive rest comfortably on the ground or on top of the case if you're using rear USB ports.

Compatibility

The Pocket Drive supports USB 2.0, making it faster on newer systems that support the standard. (According to Seagate, the drive can perform sequential reads and writes at speeds between 4MBps [megabytes per second] and 7MBps.) The Pocket Drive, however, is also compatible with the older and slower USB 1.1 standard, which lets it work with most systems. You do need at least Windows 98SE or Mac OS 9.2.2 to use the drive.

Mac OS and Windows Me/2000/XP will recognize the new drive and install the necessary drivers as soon as you plug it into the USB port. To use the drive with Win98SE, you'll need the included CD-ROM.

If you're using a Mac, Seagate recommends you reformat the drive using a Mac file system. In addition, Seagate doesn't recommend using the drive to share data between Macintosh and Windows systems.

Software

The included Seagate Toolkit software isn't necessary, but it provides some handy features. The most compelling is the ability to create a secure partition on the drive. You need the Toolkit software to read or write data on a secure partition.

Another handy feature is the ability to create a bootable partition on the drive. This lets you install and boot an OS from the portable hard drive. Differences in hardware configurations and WinXP's product activation make it difficult to use Windows, but Linux gurus can install and boot the OS from the Pocket Drive. Imagine being able to boot into your desktop on virtually any computer.

Fun & Games

Having 5GB of storage space in such a small device opens up all kinds of new possibilities. I copied a number of benchmarks and drivers to the Pocket Drive that I used to test systems for one of our sister publications. The Pocket Drive is also a great way to back up a large number of files.

In addition to the 5GB drive we tested, Seagate also offers a 2.5GB hard drive. The 2.5GB version sells for $149, while the 5GB version sells for $199. (We recommend paying the extra $50 for a 5GB version.) However, we found both drives for significantly less online. ▋

Digital Dominance

How Apple's iPod Demolished The Competition

Kylee Dickey

Send your comments to
kylee@smartcomputing.com

COURTESY OF APPLE

I can't remember a gadget that's provoked such devotion and fanaticism as Apple's iPod. Supplies run thin every holiday season, many companies sell nothing but iPod accessories, and there are a rash of iPod fan sites, blogs, and other testimonials.

The Numbers Reveal The Obsession

Some compare the iPod's popularity to that of Sony's Walkman 20 years ago. But it took Sony six years to sell the number of iPods that Apple sold in just three years.

NPD Groups' research shows what a strong grip Apple has on the digital-music market. Among retail sales of hard drive-based players, Apple holds a 87.3% market share. Even more revealing is that Apple's closest competitor is the HP-branded iPod + HP. When you include iPod + HP, nine out of every 10 hard drive-based players sold through retail outlets is an iPod.

As of press time, Apple had not released a flash-based iPod, yet no manufacturer has claimed dominance in the flash-based-player market. iRiver holds the top position with just 18.8% of the market. Whereas the iPod has no immediate hard drive-based competition, Rio and Digital Way are serious flash-based competition for iRiver, with 18.6% and 15.8% market share, respectively.

Dissecting The iPod's Dominance

I wonder what the iPod has that demolishes all competition. After all, many people desire a music player with a built-in FM tuner or movie-playing capabilities, both of which the iPod lacks.

Some suggest the iPod's success is due to its design and clean interface. Parents and grandparents can use an iPod just as easily as a teen. Also, the Calendar, To Do, Contacts, and Notes features give the iPod a handy PDA (personal digital assistant)-like quality. Even if you believe that the iPod is the best music player, though, it doesn't explain its success. Consumers often fail to embrace the best products. Why should the iPod be any different?

Some say the iPod's ads with dancing silhouettes are responsible for the player's success. But Apple has always had memorable advertising. (Remember the famous "1984" Super Bowl ad for the original Macintosh?) Clearly, advertising didn't lead Apple to dominance in the computer market.

iAttachment

The real secret to the iPod's success has to lie elsewhere. I would argue it is in the devoted relationship its users form with their little white music players. People photograph their iPods in front of famous landmarks (see the collection of over 3,000 photos at http://gallery.ipodlounge.com). felicidade's Groove Bag Tote (http://www.drbott.com) is a designer purse with built-in speakers and clear iPod compartment. The purse reminds me of the designer bags for carrying poodles. In fact, some designer cases are not to protect iPods but to show them off, just as Christmas sweaters for dogs don't keep Fido from catching a chill.

For those who want a pampered iPod, Simple Solutions (http://www.crystalmini.com) sells iPod Minis, each covered in Swarovski crystals, with prices starting at $699. BMW has even decided that one luxury item deserves another. The company now offers optional installation of an integrated iPod-compatible system (http://www.ipodyourbmw.com).

Finally, if imitation is the sincerest form of flattery, one has to wonder about the people who dressed as iPods for Halloween last year. During the first week of November, several photos of people dressed as giant iPods emerged on blogs and sites such as iPodlounge (http://www.ipodlounge.com).

Everyone's A Little Bit Crazy

I like to think that I'm not one of the fanatics, but I'm not sure if I could switch from my iPod to another music player. Even so, I never expected so many people to adopt the iPod. Can 6 million iPod owners be wrong? Probably not, but it looks like some of them might be a bit obsessed. ▮

Keys To Visibility

Two Keyboards Designed With The Nearsighted In Mind

Nathan Chandler

Send insights and insults to Nathan at nathan@smartcomputing.com

Keyboards never really change. Our bodies, however, change with startling rapidity, and when our fingers start to fumble and our eyes begin to fail us more frequently, keyboards become harder to use. Because my eyesight has always been poor, I decided to test two so-called high-visibility keyboards, one from VisiKey and another from Greystone Digital.

Greystone Digital took an extreme approach when designing its BigKeys LX Color keyboard. The LX Color comes with 60 1-inch-square keys, and although the lettering on the keys is black, the keys themselves are white, yellow, blue, green, and red.

There are other differences that make this keyboard very different from others. The BigKeys doesn't include any Function keys (although you can achieve equivalent functionality by pressing the F key in tandem with a number key), there's no number pad, and the cursor keys, as well as the DELETE, ESC, and other crucial keys, are realigned in new positions on the right side of the keyboard.

The BigKeys keyboard has few annoying flaws that, for me, made the product practically unusable. Unlike most keyboards, this one doesn't bother with the tiny plastic nubs on the J and F keys that help your fingers find the home position, and minus this sensory aid, I was forced to look down far too often.

The spacing of the oversized keys made it very difficult for me to tap the correct keys with any consistency, and the huge keys tended to tip to one side or the other as I pressed them. Perhaps worst of all, the keys were downright noisy, making it sound as if my desk were home to a dozen hungry woodpeckers.

However, for severely nearsighted users who tend to hunt and peck, this model might be a suitable option, and the large, colorful keys might also appeal to children. But the grievances I noted, along with the exorbitant price, will make this keyboard unattractive to most users.

VisiKey created its Enhanced Visibility Internet keyboard by taking a 104-key model and making the letters and numbers printed on the keys four times bigger than on an average keyboard. The VisiKey is also mostly black with white characters, a high contrast design that's meant to be more eye-friendly. But other than those two alterations, this keyboard is very similar to traditional models, or at least those designed to work with Web browsing capabilities.

Above the arrow keys, there are three buttons—Sleep, Wake, and Power—programmed to control your PC's power state. These buttons worked perfectly on my Windows XP PC. Across the top of the keyboard, there are single buttons for audio playback control, as well as a number of keys, such as Search, Backward, and Forward, that are designed to simplify Web surfing. All of those specialized keys worked after I installed the keyboard's software and restarted my PC.

My gripes about the VisiKey product were few but significant. As a mediocre typist, I rely heavily on the BACKSPACE key, and on this particular model, that key is half the size of the key on my IBM keyboard. Also, the tactile feedback from the VisiKey tended to be spongier and less crisp than I'm used to, causing me to miss keys now and then.

Key Points

However, the VisiKey does succeed in making keys easier to see, and it does so at a reasonable price. Compared to the Greystone Digital product, the VisiKey keyboard is the superior alternative for users who find their productivity is suffering due to declining eyesight. The product is affordable, the keys are easy to read, and the overall layout is familiar and won't cause a lot of disruption as your fingers adjust to their new home. ▐▌

BigKeys LX Color

$159
Greystone Digital
(800) 249-5397
(704) 875-3293
http://www.bigkeys.com

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VisiKey
(423) 265-9818
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Pictures Of Perfection

Photo-Editing Apps Help You Organize, Enhance & Share Snapshots

You may not be a professional photographer, but the rest of the world doesn't need to know it. So what if your photos have lighting problems, contain distracting elements, or show people with red-eye? With a little assistance, your photos can appear as if they were taken by the likes of Ansel Adams, Anne Geddes, or Dorothea Lange.

There are several photo-editing applications that will help you organize, edit, and share your digital photographs. Whether you scan traditional photos or upload digital snapshots to your PC, these programs can transform your shots from the acceptable to the awe-inspiring. Here's an overview of four affordable, user-friendly, yet feature-packed, photo-editing apps.
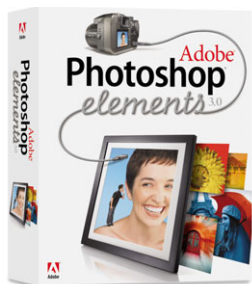
How We Tested

We narrowed nearly a dozen programs to those with a price tag of less than $100 geared toward the home user. We considered many criteria in evaluating each, with the focus on ease of use and product features. We installed each program on a Windows XP PC with a 1.28GHz Intel Pentium 4 processor, 256MB of RAM, and about 50GB of free hard drive space. This PC met the minimum system requirements of each app.

Adobe Photoshop Elements 3.0

For years, Adobe has been the market leader in image editing, but its Photoshop line has primarily been a tool for the pros. The cost (typically more than $600) put the software out of reach for average consumers, and its interface was better suited for the expert than the amateur. But home PC users now have a version designed with them in mind: Adobe Photoshop Elements 3.0.

Adobe Photoshop Elements 3.0 includes many of the features of its more expensive

sibling, and they're all contained in a package that's comprehensive and comprehensible. From acquiring to editing to distributing photos, the software is powerful and customizable. After about a five-minute installation, launch the software to display a simple, task-oriented interface. It has icons for each of the program's sections—Product Overview, View And Organize Photos, Quickly Fix Photos, Edit And Enhance Photos, and Make Photo Creation—and you simply click one to go to the desired task.

For example, click the Quickly Fix Photos icon to take advantage of automatic, one-click fixes for rotation, lighting, color, or sharpening problems. Or use the more customizable tools to fix red-eye, brush out flaws, remove grainy pixels, add special effects, crop photos, erase backgrounds, create composites, stitch together panoramas, apply text and text effects, and more.

But there's more to the software than its editing capabilities. Not only is it easy to import photos from digital cameras and scanners, but the software also supports "camera raw" format so you can eliminate the step in which the camera processes the file. In the organizational arena, you can add notes via tags, search for files by date and time, and arrange snapshots in stacks for easy reference. When you're ready to share your photos, you can create slideshows, send themed emails, and transfer photos to a handheld device, mobile phone, or TiVo DVR (digital video recorder).

System requirements include 800MHz Intel Pentium III or 4 or comparable CPU, WinXP Pro or WinXP Home with Service Pack 1 or Windows 2000 with Service Pack 4 or later, 256MB of RAM (512MB of RAM or more is recommended), 800MB of free hard drive space, 16-bit color video card or greater, and a color monitor with a resolution of 1,024 x 768 pixels or more.

Paint Shop Pro Studio

If you've used Paint Shop Pro and think you know what the program is about, think again. This past fall, the developers split the application into two apps: Paint Shop Pro 9 is the most recent version of the familiar product and is designed for the professional; Paint Shop Pro Studio is a new product that has much of version 9's functionality but is significantly more user-friendly.

The user-friendliness is apparent right away—the first thing you see when you open the software is a brief guide that introduces you to some of the basic tools and features of Paint Shop Pro Studio. These components include the One Step Photo Fix for correcting fuzzy or dull photos, the Clone Tool for painting over flaws or blemishes, the Scratch Remover Tool and Fade Correction Filter for restoring older photographs, the Background Eraser for improving head shots, and Talk Bubbles for adding fun extras.

The interface is similar to many Windows programs, with File, Edit, View, and Help menus at the top of the window, along with a row of icons and a large workspace below. But to the left of the workspace, you'll see the Quick Guides, which are guides to various projects. If you want to combine two photos, follow the Create A Collage guide. Each step provides detailed instructions, and many of the steps have a Perform This Step For Me option, making the process even easier. The editing guides and features are too many to list here, but they also include adding text, improving color, creating greeting cards, and using a picture tube to paint on a photo.

In addition to its editing features, Paint Shop Pro Studio has numerous capture and share features. You can import snapshots from your digital camera, card reader, and scanner (there's a quick guide for that,

too), and you can upload your photos to the Web or share them via email, photo CDs, screen savers, posters, and slideshows.

System requirements include a PC running Windows 98 Second Edition/Me/2000 (with SP4 installed)/XP, as well as a Pentium processor with MMX, 256MB of RAM, 500MB of free hard drive space, a 16-bit color display adapter at 800 x 600 resolution, and Microsoft Internet Explorer 6.0 or newer.

Nero PhotoShow Elite

When you launch Nero PhotoShow Elite, you'll realize this isn't your typical photo-editing app. Perhaps the flavor derives from the program's international roots; the developer's headquarters is in Germany. Whatever the cause, Nero PhotoShow Elite is a sleek, simple, and visually distinct application.

The program opens with the look and feel of a slideshow. The software covers the entire Desktop (including the Windows Taskbar), and a black background surrounds the workspace. This area contains three main icons—Manage, Make, and Share—and several small buttons for accessing the Help file, setting options, and managing the software.

In the Manage area, you import photos into the program to work with them. This encompasses organizing photos into albums, printing them, emailing photos and albums, as well as viewing and editing musical slideshows. The latter set of tasks is one of the

BUYING TIPS

Pay close attention to system requirements. Several of the programs we looked at had some perhaps surprisingly hefty system requirements. For example, Roxio PhotoSuite 7 Platinum requires Windows XP or Windows 2000 (Windows 98 and Windows Me users are out of luck), and Adobe Photoshop Elements 3.0 runs on a minimum of 256MB of RAM but recommends at least twice that amount. Make sure your PC can handle the software's needs or risk investing in a product you can't use.

Software Information

	Price	Company	Contact Information	URL
Adobe Photoshop Elements 3.0	$89.99 download; $99.99 CD-ROM	Adobe Systems	(888) 724-4508	http://www.adobe.com/products
Paint Shop Pro Studio	$69 download; $79 CD-ROM	Corel (acquired Jasc Software)	(800) 622-2793; (952) 934-8888	http://www.jasc.com/products
Nero PhotoShow Elite	$39.99 download; $51.98 CD-ROM	Ahead Software	sales@nerophotoshow.com	http://www.nerophotoshow.com
Roxio PhotoSuite 7 Platinum	$49.95	Sonic Solutions	(866) 280-7694; (905) 482-2000	http://www.roxio.com/en/products

Scorecard

	Performance	Ease Of Use	Installation	Documentation	Price	Overall Score
Adobe Photoshop Elements 3.0	5	4.5	4.5	4.5	4	**4.5/5**
Paint Shop Pro Studio	4	4.5	4.5	4.5	4.5	4.4/5
Nero PhotoShow Elite	3.5	3.5	4.5	3.5	4.5	3.9/5
Roxio PhotoSuite 7 Platinum	4	5	4.5	4	4.5	4.4/5

most distinct features of the software, as you can create a slideshow in minutes and choose from more than 100 songs to serve as the soundtrack. Plus, you can perform simple editing tasks, such as cropping, adding clip art, automatically fixing colors, and adding text to photos. Once you've edited the photos, use the Share features to upload the pictures to a Web site, publish them online, or create CDs or video CDs.

The most exciting aspect of the software, in our opinion, is the Make feature set. These tools let you create photo gifts, such as mugs, T-shirts, and puzzles, with your photos on them. You can even create calendars and screen savers.

We appreciate the sleek simplicity of Nero PhotoShow Elite, but we have a word of warning to the less adventuresome: At times, using this program was like driving in a foreign country. Although you can navigate by viewing the road signs, it takes some getting used to, and sometimes you aren't exactly sure what you're getting into.

System requirements include Win98SE/Me/2000/XP, 450MHz Intel Pentium III or faster, 128MB of RAM (256MB of RAM is recommended), minimum of 80MB of free hard drive space, a screen resolution of at least 800 x 600, 16-bit color depth or higher, as well as Macromedia Flash Player V.6 and a Web browser that supports Flash Player.

Roxio PhotoSuite 7 Platinum

If ease of use is your top priority, look no further than Roxio PhotoSuite 7 Platinum. We've been covering this software for years, and it consistently rates high in user-friendliness, a trend that continues with version 7.

One reason Roxio PhotoSuite 7 Platinum is so user-friendly is that the interface is intuitively laid out according to task. When you open the software, you'll see the logo at the top, followed by a list of tasks you can perform. For instance, you'll want to start by importing photos, so click the Import Photos link to open a Capture window. This window provides an overview of the capture process and walks you through the steps.

Or consider the Edit And Fix Photos link. Clicking this link opens a window where you can browse

your hard drive or other devices for photos. Once you've selected one (or several), the file opens in the workspace, and you'll see the editing options on the left. Click any of the options for the software's step-by-step procedures. The software also includes sophisticated editing options, such as the ability to create cutouts and masks, repair damaged photos, and add paint strokes and touchups.

Another reason Roxio PhotoSuite 7 Platinum is so easy to use is that it comes loaded with tutorials. By clicking a link on the launch page or by opening the Help file, you access tutorials for creating slideshows and turning them into video CDs, organizing your digital content with the Media Manager, playing back DVDs created with Roxio software, and much more.

System requirements include WinXP (SP1 or later) or Win2000 (SP4 or later), as well as a 1.2GHz Intel Pentium III or an equivalent CPU, 256MB of RAM, 1GB of free hard drive space, a screen resolution of 1,024 x 768 pixels, and a 16-bit color graphics card.

Our Smart Choice

By using one of the above programs, even amateur shutterbugs can produce top-notch photos. But which app should you choose? We found something to recommend in all of the photo-editing apps we reviewed, but we want to mention Roxio PhotoSuite 7 Platinum's user-friendliness and Paint Shop Pro Studio's features and quick guides. For the most useful, customizable, and comprehensive features, we rank Adobe Photoshop Elements 3.0 the highest, so we're honoring it with this month's Smart Choice award. ▐▌

BY HEIDI V. ANDERSON
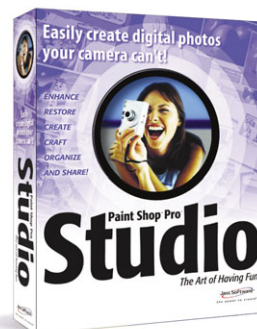
March 2005
Smart Choice
Paint Shop Pro Studio

Indulge yourself.

You deserve the visual experience that's the professionals' choice. And now you can get this grand view for under a grand. ViewSonic's luxurious 20" VP201b has ultra-high 1600x1200 resolution not even found on smaller LCDs. So indulge yourself in the screen with sharper text and more brilliant color, in the size that means less scrolling and searching, and in the style designed with your comfort in mind, including tilt, swivel and height adjustments and a sleek ThinEdge™ bezel ideal for multi-screen arrays. All from ViewSonic, the #1 display brand in the US* for price/performance.

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Web

Web Design The Easy Way

Web Studio 4.0

$89.99
Back To The Beach Software
(619) 562-0151
http://www.webstudio.com

Since the early days of the Web, anyone who designed a Web site learned that the conventions of a universally viewable protocol required a strict set of requirements. Designers had to ensure that all text and artwork was Web-compatible and then specify exactly where text and graphics would go.

Anyone with experience in page layout pined for a program that would let them drag and drop files, create complex effects, and convert them to HTML (Hypertext Markup Language) on the fly, while offering the same fluidity and power image editors, drawing programs, and advanced word processing applications provided.

Back To The Beach Software hopes to put that demon to rest with Web Studio 4.0. Not only can users click and position backgrounds, graphics, text, and other Web elements exactly where they want them, but they can also apply special effects without the need for a separate graphics program.

Web Studio 4.0 is WYSIWYG (What You See Is What You Get), which means you see, on-screen as you design, a graphic rendering of the page rather than the HTML code that underlies it. This approach helps novice Web designers envision their finished piece and make accurate edits. However, Web Studio lacks an HTML code view, which designers use to cut and paste ready-made snippets of code in and novices use to learn how the structure of HTML works. (Web Studio 4.0 offers an Edit HTML Source command, but it lets you view or edit only the HTML associated with a particular text object rather than for the page as a whole.)

Web Studio 4.0 has some other drawbacks that prevent us from giving it the top marks. First, Web 4.0 helps you with font selection by highlighting fonts you can safely use on the Web (only universally installed fonts are safe for straight text), but it lets you select any fonts for text—even unsafe ones. It also displays the font of your choice in the Preview mode, encouraging the belief that the font will transfer to the Web. (It probably won't.)

You can get around this by applying a special effect to text you create in Web Studio 4.0, which will convert it to a GIF (Graphics Interchange Format) graphic. (When converted to a graphic, any font is readable by a browser.) Because Web Studio 4.0 offers built-in graphics-generation abilities, however, it would be nice if you could convert any text to a graphic without applying a special effect.

Another drawback is the Help utility, which consists of a handful of online documents and a single Web Studio Documentation PDF (Portable Document Format) document. The document is extensive and thorough, but it is not indexed like a traditional Windows-program Help utility, making it difficult to use. (If you like the program but are frustrated by its Help support, spring for the $25 Video Tutorial CD.)

Beyond these caveats, Web Studio 4.0 offers some interesting features. It comes with a nice library of ready-to-use backgrounds, animations, images, and other elements, and it has a built-in engine that generates complex animated buttons and other specialized items. Another nifty feature is its built-in image editor, which will warn you about large images and resize them on command and can also apply color corrections.

Additionally, its interface is well-organized, with a row of tabbed options at the bottom that let you access its goodies. Drag any item from the tabbed section and drop it where you want, and Web Studio 4.0 does the rest. (This feature handles special effects beautifully. Drag and drop any effect, such as Drop Shadow, on top of any element, and Web Studio will generate the effect for that element.)

Overall, Web Studio 4.0 will be of little use to experienced Web designers and may confuse those who have used other Web design programs. But for novice users with no desire to learn HTML, Web Studio 4.0 can streamline the process of designing Web pages. ▌

BY JENNIFER FARWELL

Scorecard

Performance	3
Ease Of Use	5
Installation	5
Documentation	3
Price	4
Overall Score	4/5

File Transfer Powerhouse

FTP Voyager 11.2

$49.95 ($10 more for Secure version)
Rhino Software
(262) 560-9627
http://www.rhinosoft.com
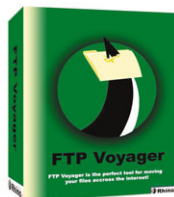
Scorecard

Performance	5
Ease Of Use	5
Installation	5
Documentation	4
Price	4
Overall Score	**4.6/5**

If you download a lot of data across the Internet, or you have a Web site that changes frequently, you have probably used FTP (File Transfer Protocol). FTP is a data-transmission standard that lets users exchange information over the Internet directly, from PC to PC, without the need for a Web-based (visual) interface.

If you use FTP, or are forced to seek out Web-based download alternatives because you do not have an FTP program, FTP Voyager may be your ticket to file transfer heaven. This program makes short work of FTP, organizing transfer information into a Windows Explorer-style interface that any Windows user will understand.

For novices, FTP Voyager offers drag-and-drop operation and Simple mode, a basic interface that hides advanced features and makes straightforward FTP a cinch. For more knowledgeable users, FTP Voyager offers scheduled downloads, support for multiple simultaneous downloads, remote and local folder synchronization, data compression to speed transfer times, and more. It also offers support for various security protocols, and for an extra $10 (Secure version), encrypts data as it travels across the Internet.

During Setup, FTP Voyager offers an Online Tutorial (which users can view at http://www.ftpvoyager.com/tutorial.asp). The tutorial is more an illustrated online help document than a true walk-through tutorial. But it's detailed and helpful for PC users new to FTP. FTP Voyager's Profile Manager (which keeps track of settings to frequently used sites) comes with links to FTP sites so you can start exploring the world of FTP right away.

If you use, or plan to use, FTP, FTP Voyager is a powerful solution whose price is well-earned. Even if you have never used FTP, consider downloading the free trial. There are millions of FTP sites, many of which offer public access for downloading everything from software updates to reference books. ▮

BY JENNIFER FARWELL

In The Director's Chair

PowerDirector 3

$89.95
CyberLink USA
(510) 668-0118
http://www.gocyberlink.com

Scorecard

Performance	5
Ease Of Use	5
Installation	5
Documentation	4
Price	4
Overall Score	**4.6/5**

For home movie aficionados, producing multimedia extravaganzas can be a challenge. The editing software or built-in features of digital video cameras are often limited, but high-end video-editing software is expensive and complicated to use. A happy medium is CyberLink's PowerDirector 3.

With PowerDirector 3, you can use video and audio clips, digital photographs, and sound bites to create home movies, multimedia presentations, or slideshows. You can import files from your digital videocam, still camera, scanner, or TV/VCR (with video-capture card), add special effects, transitions, and text to your files, perform basic color correction, and export your masterpieces to Video CD, DVD, streaming media file, and other media formats.

PowerDirector 3 offers a straightforward, button-driven interface that gets new users running quickly without the need for lengthy tutorials. A Timeline mode lets you drag and drop files and move them into position. Yet, the program offers precise trimming of video and audio files, specialized encoding and rendering technologies that preserve video quality, and the ability to speed up or slow down playback with little distortion.

PowerDirector 3 also has reasonable system requirements, which is a real boon. While you will need several gigabytes of storage for your files, you can run Power-Director 3 with only a Pentium II and 128MB of RAM (256MB recommended) on a monitor with 1,028 x 768 or better display resolution. (For advanced video production, CyberLink recommends a Pentium 4 with Hyper-Threading technology).

Experienced video production junkies may find PowerDirector 3's interface simplistic, although they will be surprised by its output capabilities. However, home-movie enthusiasts will find it provides an attractive collection of features in an easy-to-use package. ▮

BY JENNIFER FARWELL

IMPULSE ITEMS

Cool Stuff For $20 Or Less

Compiled by Joshua Gulick
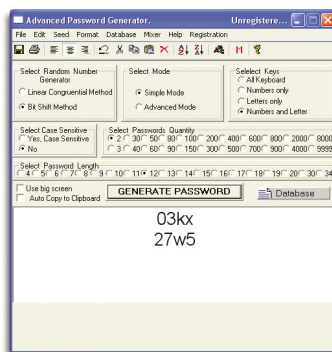
ADVANCED PASSWORD GENERATOR

If you regularly read *Smart Computing*, you know that basic, word-based passwords won't stop even amateur crackers. True cracker-foiling passwords contain a string of random numbers and letters rather than words. Unfortunately, we have a tough time thinking up complicated passwords, let alone remembering them. Save time (and your sanity) by downloading Advanced Password Generator (http://www.segobit.com), a small program that lets you select from several options (such as Password Length and Case Sensitive). When you click Generate Password, the program displays several potential passwords and lets you print them. You can also store all of your passwords in the program's Database section. Try the program free or register it for $15.
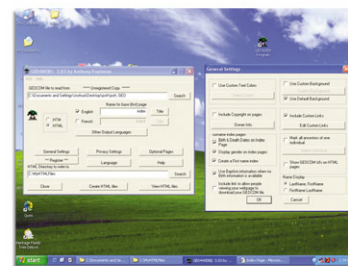
GED4WEB

When you enter your family's history in a genealogical program, the software most likely saves the data to a GEDCOM (Genealogical Data Communications) file. Most genealogy programs support this type of file, which means you can transfer your information to other programs (or share the info with other users who have different programs). However, not all programs can export the GEDCOM data to HTML (Hypertext Markup Language) pages, and some people want to view the data without shelling out the cash for a full editing program. Enter GED4WEB (http://www.ged4web.com). This small application can't edit family info, but it grabs your GEDCOM data and displays it in a Web page (or multiple Web pages). Try GED4WEB free or register it for $19.95.

FLEXUSB

If you have multiple USB (Universal Serial Bus) devices, you probably run into the same plugging problems you experience when you plug all of your computer's various cords into a surge protector: The bulky attachments take up too much space and block nearby receptacles. The FlexUSB (http://www.cyberguys.com) solves your USB-related plugging problems by extending one of your computer's ports away from the other ports. It even has an adjustable body that lets you twist it away from bulky USB devices. FlexUSB supports USB 2.0 connectors and slower USB 1.1 connectors and is available for $9.95.
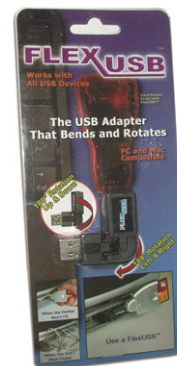
Outdoor Navigator

It's a fact: Long-term hiking and boating trips are tough on your outdoor equipment. So, if given the choice between a tough, laminated atlas and mapping software for our PDA (personal digital assistant), what would we choose? The PDA software, of course. Sure, you'll probably drop, step on, or lose your device along the way, but until you do, Maptech's ($19.95; http://www.maptech.com) detailed, color mapping software takes advantage of your PDA's GPS (global positioning system) capabilities to point you in the right direction. That is, assuming you remembered to plug a GPS device into your PDA before you headed out the door. Buy Outdoor Navigator for your palmOne-based or Windows Mobile-based PDA (and double-check to make sure your device supports GPS add-ons). The software also supports some smartphones.

Ricochet Lost Worlds: Recharged

We've seen brick-smashing games before, but we can't get over Reflexive Entertainment's Ricochet Lost Worlds: Recharged (http://www.terragame.com). The game boasts excellent graphics, and you'll learn how to play in a heartbeat. As with similar games, each level includes several dozen blocks, a ball, and a special paddle (in this case, a spaceship) that slides across the bottom of the screen to deflect the ball toward the bricks. The object is to break all of the bricks in the level without letting the ball slip past your paddle. But unlike other brick smashers, Ricochet has detailed, animated backgrounds, such as an ocean setting in which fish swim across the screen. We're also glad to see that the game lets you direct the spaceship with your mouse. Try Ricochet free and then buy it from TerraGame.com for $19.99.

Qurio

If you're looking for inexpensive photo album software, try Qurio (http://www.qurio.com): It's free. You don't divulge so much as your email address when you download the software and build slideshows, and you can store (and display) your photo albums online by simply choosing a Qurio screen name. Once you download the software, you can buy custom products from Qurio's store, such as a Mini Photo Book, which is available for $9.99. (Full-sized albums start at $24.99.) Qurio uses your digital photo album to create the real books. You can also order individual prints from Qurio.

Pixifun Photo ID Badge Kit

Don't forget the badges when you plan an event or party. Pexagon Technologies' Pixifun Photo ID Badge Kit (http://www.pixifun.com) includes software that lets you put a face with the name, assuming you have digital pictures on your PC. Once you choose a background (the software includes hundreds of designs), you can print the badges on the kit's 18 badge stickers. The kit also includes 10 badge holders. Buy the Pixifun kit for $12.99.

You've Got The Power (Toys)

Does your Windows XP ClearType not look quite as good as you think it could? Do you miss the spinning globe animation that used to entertain you as you waited for Web pages to display in Internet Explorer? Do you often have a need to convert feet to meters? Have you ever wished for a quick way to turn a bunch of photos into an animated slide show you could post to your Web site?

Someone at Microsoft anticipated these and other user yearnings and set about satisfying them. The result is PowerToys For Windows XP, a set of tiny applications that let you change Windows settings you can't ordinarily change or do things with Windows you can't usually do.

The good news about PowerToys is they're free. The bad news is that they're unsupported; if you can't figure out a PowerToy, or if it causes some kind of problem, you're pretty much on your own. (We haven't heard of or encountered any such problems ourselves, but forewarned is forearmed.)

Choose & Download Your Toys

Head to the Microsoft PowerToys For Windows XP Web site, http://www.microsoft.com/windowsxp/downloads/powertoys/xppowertoys.mspx. Read the descriptions of each toy to decide which you want. On the right, click a link to download one of the toys (read the link text carefully—the descriptions don't line up with the download links). In the File Download dialog box, click Save; set Save In to Desktop, click Save to download the file to your Desktop, and click Close. Repeat the process for every PowerToy you want to download.

Move to your Desktop, find one of the PowerToy installation files you just downloaded, and double-click it. Follow the InstallShield Wizard's instructions, clicking Next and Finish until the applet is installed. Again, repeat the process to install any other PowerToys you downloaded.

That's it—your toys are installed and ready to use. What follow are some quick instructions for using a few of the most popular toys. (Space prohibits documenting all of them.)

The Alt-Tab Replacement PowerToy lets you see a thumbnail of the window you're about to switch to.

ClearType Tuner

The newest PowerToy, the ClearType Tuner, lets you fine-tune WinXP's ClearType display to make on-screen text even more readable than ClearType makes it by default. It also can clue you in on your screen's optimal resolution—something that may be a mystery to you, especially if you have an older laptop. (Even if you ran the Tuner immediately after installation as prompted, you may still find it useful to step through it again.)

To run the ClearType Tuner, click Start and Control Panel. In the Control Panel window, double-click ClearType Tuning. Make sure Turn On ClearType is selected. (Windows doesn't turn it on by default, and many users don't have it turned on.) Click Important. . . . In the Help window that appears, scroll down to the Directions section and follow the instructions to determine if your display needs adjusting and adjust it to its optimal resolution. Adjusting your display is worth trying even if you see the slightest repeating band pattern in Image (a).We did, and it made a big difference.

Close the Help window, click Start Wizard, and follow the instructions to tweak your display. You can also click the Advanced tab to tweak change the sample font, adjust screen contrast, and more. (When adjusting contrast, note the original setting, in case you want to undo your changes.) Click Apply to make sure your changes are applied. When you're finished, click OK.

Alt-Tab Replacement

If you're new to Windows, you may not even know about the ALT-TAB keyboard shortcut, which lets you switch from one open window to another. But for longtime Windows users baptized in the small screens of older computers, or in the Taskbar-free world of Windows 3.x, ALT-TAB is a hard habit to break. The Alt-Tab Replacement toy makes using the shortcut a tad easier by displaying pictures of each window you're about to switch to.

Once it's installed, the toy is easy to use: Just hold ALT and press TAB. A screen appears displaying icons representing your open windows (on the right) and a screen shot of the window (left) corresponding to the currently selected icon. Selecting the icon for a minimized window displays as a picture of the window's title bar.
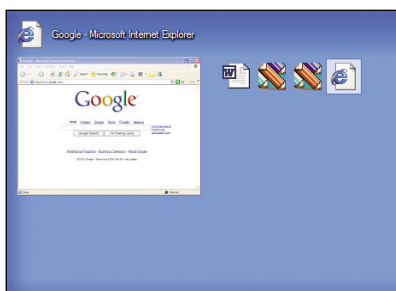
Windows XP
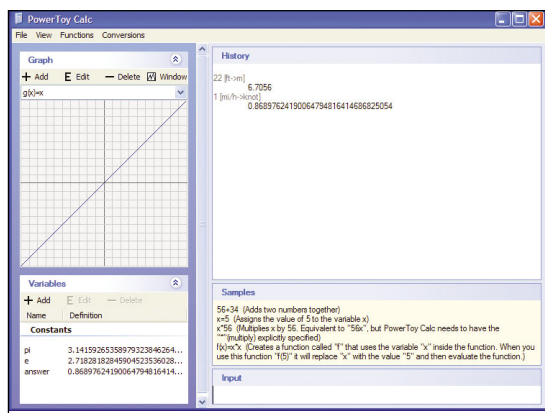
The PowerToy Calculator performs all kinds of handy conversions and will even graph functions.

Keep pressing TAB until the window you want to move to appears; then let go of both keys.

PowerToy Calculator

It's not exactly intuitive, but the PowerToy Calculator will come in handy for anyone who needs to make mathematical conversions—or for anyone who would prefer to type equations rather than hunt-and-click the standard Windows calculator's number pad.

Click Start, All Programs, PowerToys For Windows XP, and PowerToy Calculator. It's a fairly busy screen, but the first place most users will want to go is the input area. Suppose, for example, you want to multiply 13 by 128. In the Input area, type **13 * 28** and press ENTER. The input equation and the answer appear in the History window above.

Next, suppose you want to convert 22 feet to the equivalent number of meters. In the Input area, type **22**. Next, choose Conversions, Length, Feet, and Meter. The appropriate formula appears in the input area (along with a message you can ignore). Press ENTER, and the equation and the answer appear in the History window.

This toy is capable of much more: many more conversions and all kinds of math and trigonometric functions. It can even graph functions.

TweakUI

Available since Windows 95, TweakUI is the granddaddy of all Windows PowerToys. The idea behind TweakUI is simple: It gives you a simple way to change elements of the WinXP interface that you can't change otherwise or that you can change only by mucking with the Registry.

To start TweakUI, click Start, All Programs, PowerToys For Windows XP, and TweakUI. The TweakUI window includes a collapsible menu of tasks on the left; click a topic to see the corresponding tweaks on the right.

A great first step to take with TweakUI is to click the plus sign (+) next to About and click Tips. You can keep clicking Next Tip or Previous Tips to scroll through these tips, but a better idea is to click Save Tips, which lets you save all of the tips in the applet to a Notepad file you can print and refer to.

Next, work through the items one by one and make the tweaks that appeal to you. Here are a couple of favorites to start you off.

Speed folder display with smaller thumbnails. Displaying image files as thumbnails is handy but often slow. Speed up thumbnail display and minimize scrolling by making your thumbnails smaller. Click the plus sign next to Explorer and click Thumbnails; set Size to something smaller, such as 50, and click Apply. The next time you open My Documents or any other folder, the picture thumbnails will be smaller and display faster.

Tidy up the Control Panel. If there are Control Panel applets you never use, you can hide them and make the ones you do use a lot easier to find. Click the Control Panel item; under Control Panel Extensions, uncheck the applets you want to hide (note that this does not uninstall them). Click Apply, and the unchecked applets will disappear from the Control Panel window.

Caveat Tweaker

While most of the tweaks are helpful or innocuous, some can be nasty if set incorrectly. Take, for example, X-Mouse (part of TweakUI). X-Mouse automatically puts the focus on any window you hover over, which can save you a lot of clicks. However, if you turn on the Autoraise While Activating feature (which is what makes X-Mouse worth doing) but use the default Activation delay of 0ms, you may never again be able to get your mouse to a window layered over another window. Our advice is to set the Activation delay to 500ms or higher, which should be more than enough time to get your mouse to any window and make the feature practical.
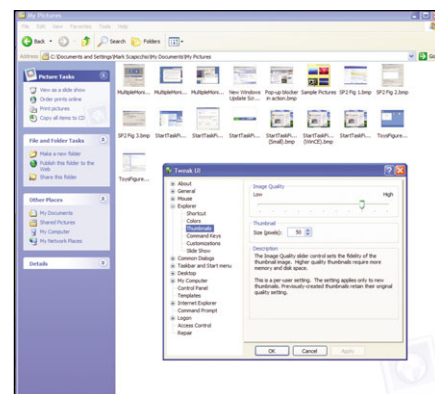
One of the myriad uses of TweakUI (foreground): changing the size of thumbnail images in your document folders (background).

By Mark Scapicchio

Windows 98

Configure & Use AutoDial In Win98

Before there were broadband Internet connections, there was AutoDial. This inconspicuous feature, available in various versions of Windows, including Windows 98, enables your system to initiate a dial-up network connection on its own when you open an Internet application, thereby saving you the multiclick hassle of manually opening a connection each time you want to check your email or surf the Web.

But what about those times when you want to add a new contact to your email address book or view an HTML (Hypertext Markup Language) Readme file from a software installation disc? At such moments, the clicks and screeches of an analog modem will seem less like a perk and more like a pain in the neck. Auto-Dial's propensity to obstruct efficiency and disrupt phone conversations is one reason so few people use the feature or know it exists.

To activate AutoDial, click Connect Automatically and Connect. The activation will not be complete if you select Connect Automatically and close the dialog box without making a connection.

Set It Up

The other reason is Microsoft does little to promote AutoDial. Even though Microsoft's Knowledge Base (http://support.microsoft.com) contains articles with references to the feature, you will not find any allusion to AutoDial within Win98. Even a search of the Help utility in Win98 reveals no information about this feature. The only way to access the feature is to know where it's located and how to activate it.

The first step toward activating AutoDial is to open the Connections page of the Internet Properties dialog box and select Always Dial My Default Connection.

That part is easy. Make sure your PC is equipped with a functioning analog modem and the latest version of Internet Explorer. You can get a copy of the browser by visiting http://www.microsoft.com/windows/ie/downloads/critical/ie6sp1/default.mspx and following the on-screen instructions for downloading Internet Explorer 6 Service Pack 1. Assuming you have the necessary hardware and software, the next thing to do is open the Control Panel, double-click the Internet Options icon, and select the Connection tab in the resulting Internet

Properties dialog box. (You can also access the Connections tab via IE by going to Tools and Internet Options.) Locate and select the Always Dial My Default Connection option under the Dial-up And Virtual Private Network Settings heading. Click OK to save the change and close the dialog box.

Open your browser and wait for the Dial-up Connection dialog box to appear. Locate the Connect Automatically option and click it once so that a check mark appears next to it. This is the setting that fully activates AutoDial. Every time you open an Internet application from now on, the Dial-up Connection dialog box will appear on-screen and initiate your dial-up connection.

Advanced Issues

Much of the trouble AutoDial causes relates to the fact it attempts a dial-up connection every time you open an Internet application. This is not a malfunction or a bug, but rather the way the feature is designed. To avoid the unpleasant surprise of unexpected dial-up connections, consider how you use your PC before activating AutoDial. You should not activate the feature if you frequently use your Web browser for viewing local image files, for instance, or prefer to draft email messages offline. A better solution in these cases is to open My Computer, double-click the Dial-Up Networking folder, and drag to the Desktop the icon that represents your preferred connection. The resulting Desktop shortcut offers a convenient method of accessing the Internet only when you need it.

If you decide you would indeed benefit from AutoDial, learn how to use it effectively.

Canceling unwanted dial-ups. Occasionally, you may find it necessary to stop AutoDial from establishing a connection. To do so, click the Cancel button in the Dial-Up Connection dialog box. The dial-up attempt will terminate immediately. Keep in mind that canceling a dial-up attempt automatically disables the AutoDial feature. You can activate AutoDial again by reselecting the Connect Automatically option the next time you see the Dial-Up Connection dialog box.

Redialing. If AutoDial encounters a busy signal or is otherwise unable to complete the dial-up connection, it will attempt to redial the number 10 times. You can adjust this setting by accessing the Connections page of the Internet Properties dialog box. You can get there quickly by clicking the Settings button in the Dial-Up Connection dialog box.

Highlight your preferred connection in the Dial-Up And Virtual Private Network Settings and click Settings. When the My Connection Settings dialog box appears, locate the Dial-Up Settings heading and click its corresponding Advanced button. The Advanced Dial-Up dialog box will appear on-screen. Specify the number of redial attempts in the Try To Connect . . . Times field. The default setting is 10. You can configure the setting for as many as 99 redials, but we recommend keeping the setting between 3 and 20. Consider switching service providers if you routinely redial over 20 times to achieve a connection.

You also have the option of changing the duration of the waiting period between attempts. The default setting is five seconds, but you can extend the waiting period to as long as 99 seconds.

Terminating idle connections. While you have the Advanced Dial-Up dialog box on-screen, review the Disconnect If Idle For . . . Minutes and Disconnect When Connection May No Longer Be Needed settings. These settings simplify the process of terminating an existing dial-up connection. They do so by presenting an Auto Disconnect dialog box if, in the case of the former, you fail to click a hyperlink, scroll through a Web page, check for new email messages, or perform any other Internet-related action during a specified period of time; or if, in the case of the latter, you close all open Internet applications.

The Auto Disconnect dialog box gives you two options: Disconnect Now, which will terminate the current dial-up session, and Stay Connected, which will maintain the current dial-up session in the event that you plan to open another Internet application soon. The dialog box also gives you the option of disabling Auto Disconnect. We encourage you to take advantage of the Auto Disconnect feature, especially if you pay for your Internet usage by the hour or if you use a single phone line for accessing the Internet and making calls.

Managing connections. Many users configure their systems to support multiple dial-up numbers.
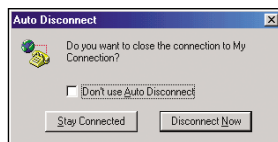
After closing your Web browser and email client, Auto Disconnect (if activated) will ask if you want to terminate or prolong the session.

Each number requires a unique dial-up connection within Windows. Add extra connections by opening the Connections page of the Internet Properties dialog box, clicking the Add button, and following the instructions in the Make New Connection Wizard.

To select the default connection AutoDial will contact each time you open an Internet application, highlight the desired connection on the Connections page of the Internet Properties dialog box and click the Set Default button. You can change the default connection as often as you like. You also can change it on the fly by canceling AutoDial before it completes the connection and highlighting a different connection in the Connect To field of the Dial-up Connection dialog box. Just make sure to select the Connect Automatically option again so that AutoDial stays active.

Remove an unwanted connection by going to the Connections page of the Internet Properties dialog box, highlighting the unwanted connection, and clicking Remove. You must set a new default connection if you delete the old one and plan to continue using AutoDial.

Coexisting with a network connection. If you have network access to the Internet, as well as a dial-up connection, configure AutoDial in a way that accounts for your situation. Go to the Con-nections tab of the Internet Options dialog box and select Dial Whenever A Network Connection Is Not Present. When this setting is active, Windows will suppress AutoDial if a network connection is detected and activate AutoDial if one is not.
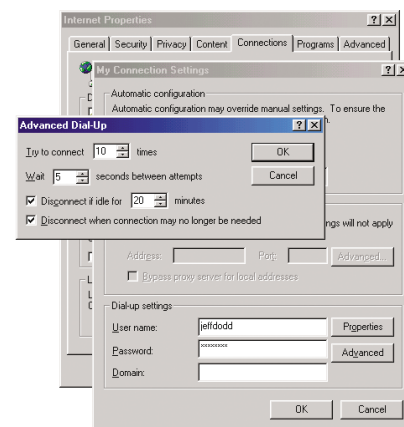
Hang Up

Terminating a dial-up connection is as easy as establishing one, provided you activate the Auto Disconnect feature. Otherwise, you must terminate the connection by opening Dial-Up Networking, double-clicking the icon for the active connection, and clicking Disconnect in the Connected To . . . dialog box. The connection will remain offline until you open your Web browser or email client again. ∎

Take advantage of the Advanced Dial-Up dialog box to specify the number of times AutoDial should attempt to establish a connection. While you're there, configure the Auto Disconnect settings.

BY JEFF DODD

Compiled by Kyle Schurman
Graphics & Design by Lori Garris

Rethinking The World Of Light

OLED Comes Into Its Own

Undoubtedly, the electric light bulb is one of mankind's greatest inventions. It seems strange, however, that light bulbs haven't undergone significant changes in decades. Sure, tweaks have occurred, such as fluorescent bulbs, long-life bulbs, and the ever-popular three-way bulbs.

Regardless, it may be time to give light bulbs a serious upgrade, and many researchers think OLED, or organic light-emitting diode, technology is the answer. Using OLED, researchers can improve on several products, including the light bulb and computer displays. OLED technology can yield extremely thin, flexible, bright, and power-conserving PC displays. And although OLED is still several years away from significant market share, several promising ideas are in development.

Metal Cathode

Anode

Emitter Layers

Glass

Anode

Electrical Current
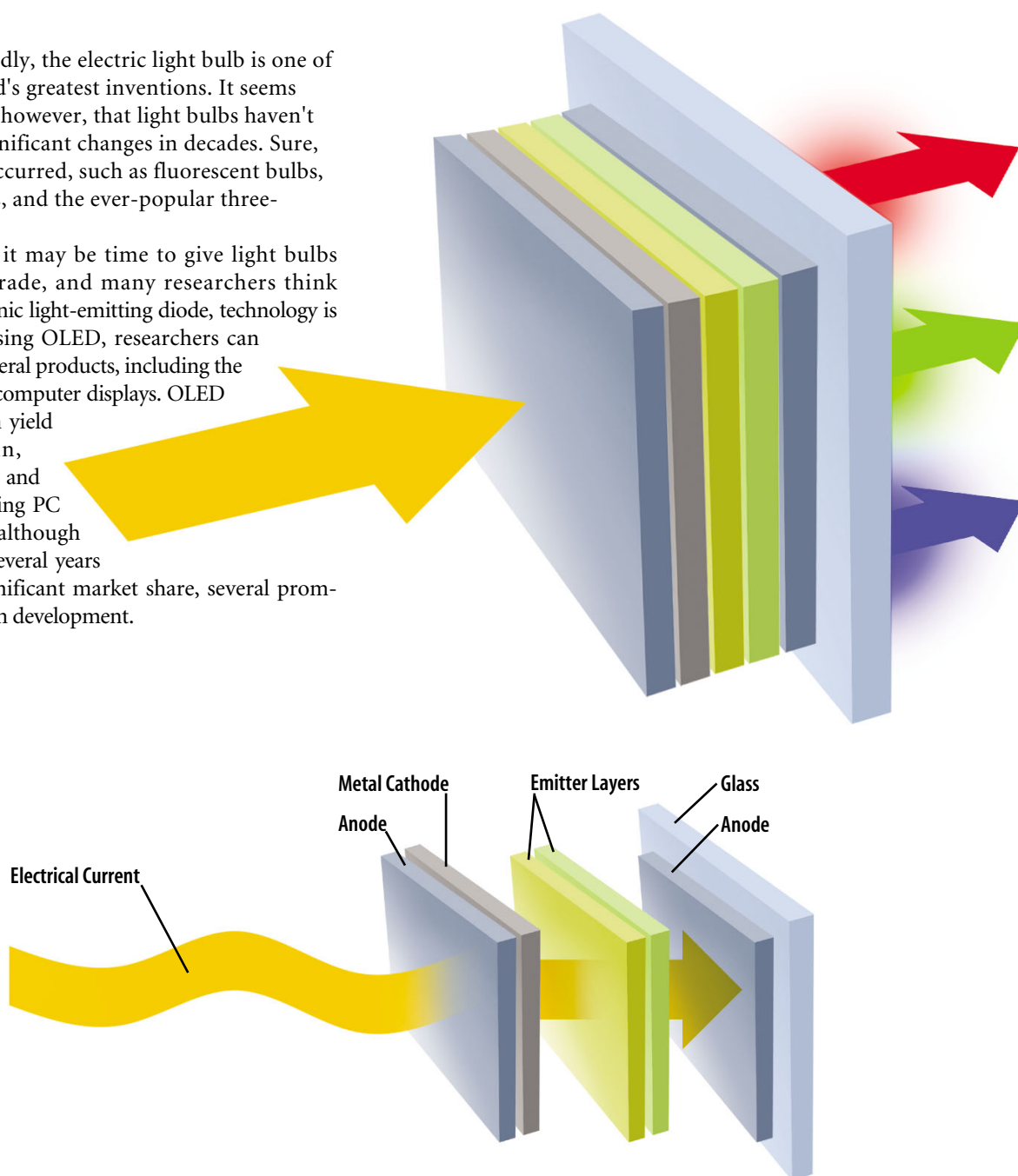
1 To operate an OLED display, an electrical current moves through the two conductors (often a cathode and an anode).

2 A series of organic emitters (sometimes called organic thin films) are layered between the two conductors.

OLED's Applications

OLED is a technology that applies electric current to organic polymers, such as proteins and DNA, to create light. Several products will be able to make use of OLED during the next several years.

Computer displays. If you love today's flat-panel displays and the tiny amount of space they occupy, OLED displays will put them to shame. Most OLED displays can be a few millimeters in thickness, and they'll weigh far less than the typical monitor.

OLED technology should work well for displays, especially laptops, for a number of reasons. First, OLED generates its own light, meaning there's no need for backlighting, as there is with other types of display technology, such as LCD (liquid-crystal display). Second, OLED displays can run video better than LCDs because OLED has a faster response time. Each OLED pixel can act independently, allowing the display to change more smoothly. Third, OLEDs can operate in wider temperature variations than LCDs. Fourth, they have a wide viewing angle of at least 160 degrees. Finally, they will use far less power than an LCD, which will lengthen the battery life in a laptop.

Flexible displays. Another OLED advantage is the possibility of flexible displays, including FOLED (flexible OLED).

Users can use FOLED for several types of products, such as a digital newspaper. A flexible display could be rolled and curled like paper, making it easy to carry, and it could update automatically when connected to the Internet, perhaps through a docking station or wirelessly. Using flexible displays would be a possibility for wearable computers, too. Because OLED can be extremely thin and lightweight, this technology makes flexible displays a strong possibility.

Wall-mounted lighting. Universal Display, one of the leading researchers of OLED technology, is working on a different version of the technology, WOLED (white OLED). WOLED would be an optimal product for creating wall-mounted lighting.

Using the phosphorescent OLED materials that Universal Display has created, it expects WOLED will be up to four times more efficient in terms of power consumption than other OLED versions. Phosphorescent OLED materials also should generate less heat and operate longer than other OLED versions. WOLED also would be far more energy efficient than today's light bulbs. There's hope among energy experts that WOLED wall-mounted lighting can significantly cut energy usage worldwide within 10 years.

When used in a window, WOLED would use OLED to create light at night. This would allow a homeowner to replace traditional lightbulbs throughout the house. If you want to see outside the window, you would simply turn off the light, thereby making the window transparent again.
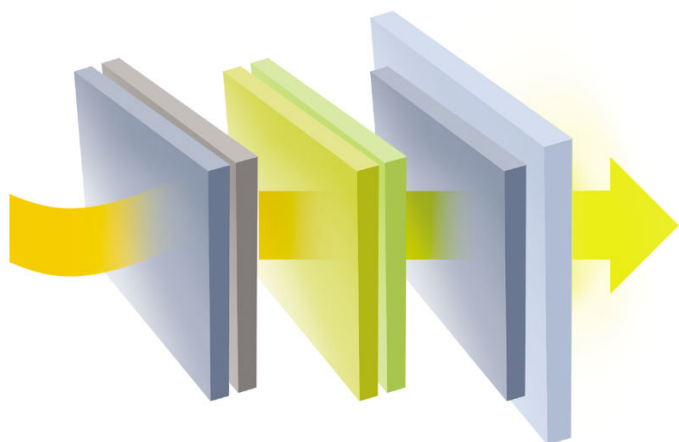
③ When the electrical current moves between the conductors, the organic emitters give off light (called electrophosphorescence).
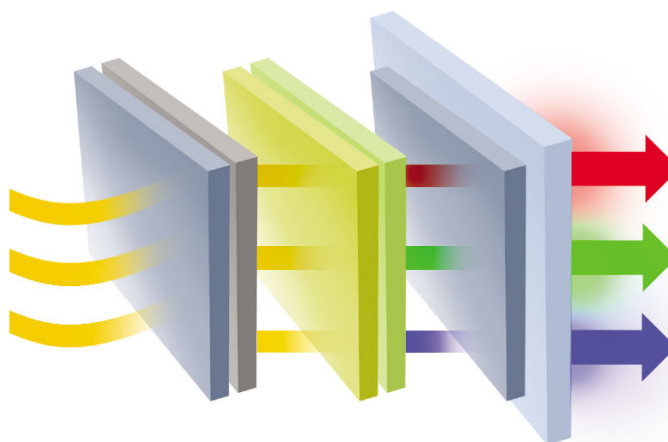
④ By adjusting the intensity and positioning of the electrical currents, the display yields different colors and brightness levels.

Something For (Nearly) Nothing

Outfit Your PC With Cost-Efficient Software

t doesn't seem like that long ago that the cost of a decently outfitted PC—even an entry-level model—would set you back many thousands of dollars. These days, good-quality basic PCs are available for as little as $400 and even premium models can be had for barely more than $1,500.

But being productive with a new PC isn't just about the hardware. The real value of a PC lies in its software, and depending on what capabilities you need, you may find that the cost of a handful of applications can approach or even exceed what you paid for the computer in the first place. And while most PCs come with several bundled name-brand applications, they're often little more than marketing vehicles, set to expire in a fairly short period of time in the hopes that you'll soon ante up for the full-priced version.

However, you don't have to shell out a pile of money for good apps. We'll look at a number of software categories that offer fine low-cost choices, including shareware and freeware that cost less than comparable products from brand-name publishers. All the apps highlighted are compatible with Windows XP, and in most cases, with earlier versions of Windows, as well. They also come with uninstallers (except where noted) so you can remove them fairly easily.

Most of the programs listed are developed by small firms or individuals, and their products may not always offer the same breadth of features or level of technical support provided by comparable products from well-known vendors. Having said that, people generally use a relatively small number of a program's capabilities, so most users likely will find these choices suitable. And because even the big vendors often provide limited support these days, you may find a small publisher or programmer offers a level of personal service you'll never get from the big guys.

Anti-Spyware

Some of the software categories we list may or may not be relevant to your situation, but unless you plan on never going online, anti-spyware utilities are something you'll want to—nay, must—have.

Lately, it seems that there are almost as many anti-spyware applications as there are spyware programs, and some of the heavy-hitter publishers have recently thrown their hats into the ring, either with standalone utilities or as part of more comprehensive security suites (at $30 and up). However, you don't have to pay much, if anything, to keep intrusive and malevolent spyware at bay.

One is Ad-Aware SE from Lavasoft (http://www.lavasoft.com). This shareware utility is adept at sniffing many of the pop-up generators, search toolbars, and other nefarious items that tend to attach themselves to your system over time. Better yet, there's no time limit on the shareware version, so you can continue using it indefinitely at no charge. (That said, donations are accepted, and the company offers an enhanced version of the utility for $26.95.) One downside is that after Ad-Aware identifies harmful or questionable items, you can't bulk-select them for deletion. Then again, indiscriminately removing uncertain components from your system can often cause more problems than it solves, so manually perusing the list isn't necessarily a bad thing.

Another worthy utility is Spybot Search & Destroy (http://www.safer-networking.org). Like Ad-Aware,
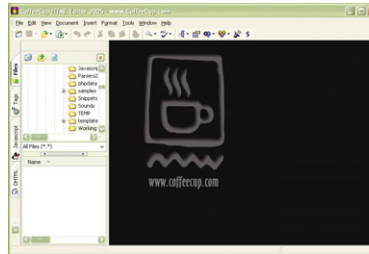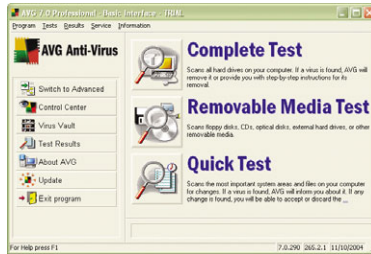
Spybot is free. (The author accepts donations via PayPal at his site.) Spybot adds a component called TeaTimer that helps keep you one step ahead of spyware by monitoring your Windows Registry and configuration settings, which prompts you to confirm any changes that are made behind the scenes.

Antivirus

These days, spyware tends to make headlines more than viruses. But that doesn't mean the threat from old-fashioned viruses has passed. Antivirus software is a must for any PC you want to keep secure and in good working order. An annual subscription to antivirus software from major vendors such as McAfee or Symantec will cost $40 or $50, but there are shareware utilities that do a good job for less.

A good option is AVG Anti-Virus 7.0 Professional from Grisoft, which is available for a 30-day trial (http://www.grisoft.com). The interface takes some getting used to, but the utility scans system files and email for viruses and lets you schedule automatic scanning. Registering AVG Anti-Virus 7.0 Professional costs $33.30. That's a bargain, but it's even more so considering the license entitles you to program and virus definition updates for two years. Grisoft has a freeware version of AVG Anti-Virus that has most of the capabilities of Professional but is licensed for home use and doesn't provide support.

Firewall

Now that spyware and viruses are taken care of, security is finished, right?

Well, not quite, because a software firewall can help protect you from all kinds of Internet-related threats.

The Sygate Personal Firewall Pro (http://www.sygate.com) can be downloaded on a 30-day trial basis and offers an easy-to-use interface that lets you view your PC's incoming and outgoing communications and running applications. It also provides a feature that will let you test your firewall settings via the Sygate Web site, which can be handy if you make any configuration changes and want to ensure they don't open any holes in your protection. Registering Sygate Personal Firewall Pro costs $39.95 a year, or $47.95 if you want to be able to get new versions of the software during that time.

Another firewall worth looking at is the Adorons Firewall from Enigma Software Group (http://www.enigmasoftwaregroup.com), a free download with no registration fee. The Enigma Firewall will monitor your applications' access to the Internet and let you create custom rules to control Internet access to and from your computer. It also has the ability to determine access based on the time of day or day of the week.

If you're running WinXP, another option is to be sure that you've installed Service Pack 2, which includes a built-in firewall. The Windows Firewall is not as full-featured as most, but it provides basic protection and won't cost you a dime.

Office Productivity Suite

Few PC users could get much done without an office suite. You can use Windows' WordPad word processor in

a pinch, but it lacks basic features such as a spell checker and word count. Besides, there's no similar spreadsheet or presentation application built into the operating system.

A copy of Microsoft Office will lighten your wallet significantly—between $150 and $300, depending on which components you need and whether you qualify for upgrade pricing. But for a mere $79.95, you can purchase the StarOffice 7 Office Suite from Sun Microsystems. You can also download a full-featured 90-day trial version at http://www.sun.com/software/star/staroffice.

The StarOffice user interface is similar to that of Microsoft Office; in fact, at a glance, you'd be hard-pressed to tell the difference. This suite offers word processor, spreadsheet, presentation, database, drawing, and HTML (Hypertext Markup Language)-editing capabilities. (It doesn't include an email client such as Outlook, however.) Each StarOffice module is compatible with current and past versions of its Microsoft counterpart, and StarOffice also includes a built-in PDF (Portable Document Format) writer, a feature Microsoft Office doesn't offer.

If $79.95 is too rich for your blood, check out OpenOffice.org (http://www.openoffice.org). This suite is completely free and provides most of the same features as StarOffice—in fact, both suites are based on the same code and thus virtually identical. You do lose a few features in OpenOffice.org-namely the database, some fonts, document filters, and a collection of clip art—but most users won't miss them.

Both StarOffice and OpenOffice.org are compatible with Windows 98 or

later (unlike Microsoft Office 2003, which runs on Windows 2000/XP only). Both applications require (and include) Java for full functionality.

PDF Creator

As mentioned earlier, both Open-Office.org and StarOffice include the ability to output a document to PDF format. But if you're already using a productivity suite you're happy with, there are standalone PDF converters available, as well.

Consider Easy PDF Creator, available for a 14-day trial period from PDFDesk Informatique (http://www.pdfdesk.com). This simple, unobtrusive utility installs as a printer on your system and allows any Windows application to output to a PDF document. Easy PDF Creator also lets you control what attributes a PDF file will receive (for example, to prevent editing or printing) and can password-protect PDF files with 128-bit encryption.

At $139, the registration fee for Easy PDF Creator isn't exactly cheap, but it's still less than Adobe Acrobat Standard's $299 price tag. In addition, PDFDesk also offers a pure freeware version available called WinPDF. WinPDF limits you to creating PDF files one at a time (Easy PDF Creator will automatically create files in batches, if desired) and can't convert an existing PDF file to HTML the way Easy PDF Creator can. (It also lacks an uninstaller.)

Photo Editing

For those of us with a penchant for taking digital photographs, some kind of image-editing application is practically de rigueur. Both Microsoft and Adobe make excellent utilities, but the cost for either is quite steep.

From a company called Power Of Software comes Photo Pos Pro (http://www.photopos.com), which can be an economical alternative to the aforementioned vendors' offerings. It's suited to both expert and novice users—it includes many advanced editing features but also provides step-by-step instructions on how to perform common tasks such as removing red-eye or changing an image background. The application supports numerous file types and can also convert between types. You can download Photo Pos for a 30-day trial period and register it for $29.90, which gets you all future program updates.

Screen Capture

Sometimes you may want to capture all or part of your Desktop image to include in a document, and although Windows' built-in tools make this possible, they certainly don't make it easy.

One utility that does is Capture-WizPro from PixelMetrics (http://www.pixelmetrics.com). This program consists of a small and unobtrusive toolbar that lets you capture a Desktop window, the entire screen, or anything in between. During the 30-day trial period, CaptureWizPro doesn't put a watermark on saved images as some shareware screen capture tools do.

You can register CaptureWizPro for $29.95. If you don't need advanced features such as the ability to capture the mouse pointer or extremely large areas that require scrolling, you can opt for CaptureWizLite for $19.95.

Internet Service Provider

Major ISPs (Internet service providers) such as America Online, Earth-Link, and MSN charge more than $20 a month for unlimited dial-up access. However, there are cheaper options that still won't limit the amount of time you can spend online.

One option is PeoplePC (http://www.peoplepc.com). For $10.95 a month, the company provides unlimited access, and unlike many ISPs, you can try PeoplePC for 30 days without providing your credit card information. You also get a number of security features, such as email virus scanning, pop-up control, and spam filtering, along with 10MB of email storage.

Another good low-cost ISP, Net-Zero (http://www.netzero.com), offers a similar unlimited access service, but for a buck less a month. (NetZero's $9.95 doesn't offer a pop-up blocker, however.) NetZero also offers a no-charge access plan. The catch is that you're limited to 10 hours of access per month, get only 2MB of email storage, receive no offline access (i.e. Outlook Express) to email, and have to look at ads. But if you plan to go online sparingly, you can't beat the price.

For an additional $5 per month, NetZero and PeoplePC both offer accelerated Internet access, which uses compression and caching technology. This upgraded access doesn't make files download any more quickly or

The free Enigma firewall is simple but lets you create your own rules and schedules for access.
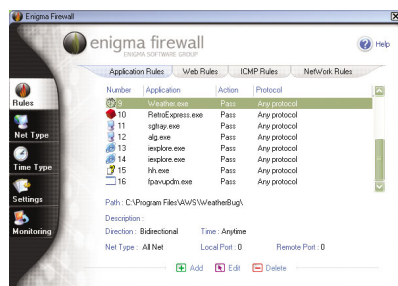
Editing digital images with Photo Pos Pro is easy thanks to numerous included tutorials.
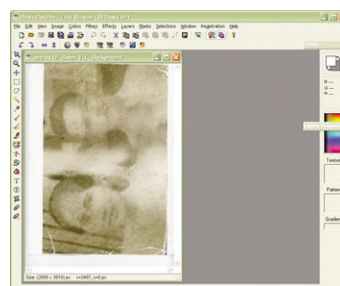
Sun's StarOffice provides most of the capabilities of Microsoft Office for a lot less money, and the near-identical OpenOffice.org is completely free.
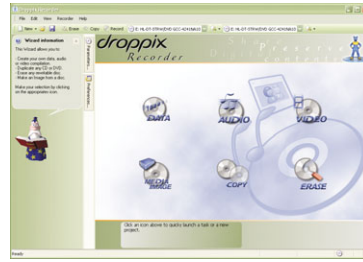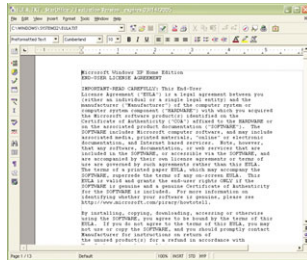
Droppix lets you create or duplicate CDs and DVDs and provides many advanced features.

enable you to view higher-quality streaming media, but it will speed up the load time of many Web pages.

If you'd sooner have a root canal than surf via dial-up, you may be able to get broadband access from your cable or phone company for as little as $30 if you bundle it with other services. Check with your carrier for details.

Web Editor

If your Internet plans include accessing Web sites and developing and maintaining them, as well, you can shell out about $200 for Microsoft FrontPage or twice that amount for Macromedia Dreamweaver.

Before you do that, you might want to check out Coffee Cup HTML Editor 2005 from Coffee Cup Software (http://www.coffeecup.com), which is available for a 30-day trial. It has a few peculiarities such as some unnecessary sound effects and buttons that say Cool! and No Way in place of the standard OK or Cancel, but it's as easy to use as FrontPage and includes helpful tutorials. And at $49, the registration fee for Coffee Cup HTML Editor 2005 is less than either of the aforementioned products.

That same $49 will also buy you a copy of SiteSpinner from Virtual Mechanics (http://www.virtualmechanics.com). SiteSpinner is an HTML editor comparable to Coffee Cup, and it's also available as a trial download (but only for 15 days of usage).

CD & DVD Burning

WinXP includes built-in support for writing to CD-Rs (CD-recordables),

but it doesn't provide any way to create recordable DVDs. Roxio's Easy Media Creator is a good choice, but budget-minded users have other options.

One is Easy CD/DVD Recorder from Paragon Software Group (http://www.paragon.ag). It's free to try and uses a simple design. (There's also an expert mode for more advanced users.) Registering the software will only set you back $24.95.

Another utility called Droppix Recorder (http://www.droppix.com) has a flashier user interface—its wizards feature an animated wizard character. It also has many advanced features, such as the ability to automatically download and update the firmware for many popular DVD-R (DVD-recordable) drives. The trial period for Droppix Recorder is 30 days, and the registration fee is 39.90 euros, which at press time was equal to about $52.

But Wait, There's More

Although Windows includes software for things such as email (Outlook Express), Web browsing (Internet Explorer), and digital audio conversion and video playback (Windows Media Player), there are usually at least a few no-cost alternatives to the built-in Windows components.

Web Browser

If IE's security issues have you feeling uneasy, give the popular Mozilla Firefox (http://www.getfirefox.com) a spin. It's free and impervious to most pop-up ads and many other pests that tend to occur with IE.

Another excellent alternative browser is Opera (http://www.opera.com). You can download the software free, but you'll be forced to look at ads unless you ante up a $39 registration fee.

Email

If you feel much the same way about Outlook Express as you do about IE, check out Mozilla's Thunderbird email client (http://www.mozilla.org). It doesn't yet have all the bells and whistles of OE, but like Firefox, it is less susceptible to the security issues that often plague Microsoft's products.

Digital Media Player/Converter

WinXP comes with Windows Media Player, a perfectly capable media app. Whether it's the best for you, however, may depend on the file format you use and what kind of portable audio device you have (or plan to buy).

If you see an iPod in your future, check out Apple's iTunes software. It's free to use (it also is included with the iPod) and can play back digital audio and rip CDs. iTunes supports MP3s and its own proprietary format, but it doesn't support Microsoft's WMA audio format.

A Penny Saved Is A Penny Earned

As you can see, you don't have to spend a lot on name-brand apps to be productive. By choosing some of the software shown here, you can outfit a new PC for a fraction of the price of products by major publishers. ❙❙

BY JOSEPH MORAN

Light Beams & Ink Drops

Once A Fantasy, Laser Printers Now A Viable Option

Has your inkjet printer ever made you see red—possibly along with a few other colors that have bled onto your hands from a photo you recently printed? Are you tired of shoveling out cash for high-quality paper to get a decent image? If so, it may be time to consider a laser printer for your home-printing needs. Laser printers have been a staple in the business world, taking on printing loads that would make an inkjet blush a bright shade of magenta. However, with the price of laser printers lower than ever, many people are considering lasers for their homes.

The Laser Printing Process

Although there are different methods for printing with ink, they all boil down to putting wet ink on a page. While inkjet printers can certainly create sharp images, especially if you use a high-quality paper, inkjet images smudge if you handle the paper before the ink has dried. This can be a hassle for those of us who need a report fast or are rushing to catch the mailman.

A major advantage of the laser printing process is that you never have to worry about wet ink. Laser printers use static electricity to create your image. Through a series of reflections from a mirror, the laser shoots a beam that draws an image on a drum. The sections of the drum that the laser beam has "charged" collect a powder called toner. The toner is then transferred to a sheet of paper, which

passes through two hot rollers that fuse the toner to the paper. The final product is a quality graphic that exits the printer completely dry.

Now that you have a basic idea of what goes on inside a laser printer, let's take a look at some considerations you'll want to address before you go shopping.

Color Or Chrome?

It may seem obvious, but one thing many consumers fail to consider is the type of documents they'll be printing. If you will be spending a lot of time printing documents that need to be in sharp color, you may want to look at a color laser printer. If, however, you will be printing numerous pages of text with only an occasional photo, you may want to go with a monochrome laser printer for textual needs and use your inkjet printer for color documents.

Pointillism At Its Finest

The resolution of a printed image is measured in dpi (dots per inch). Normally given in two numbers (such as 600 x 600 dpi), the first number generally refers to horizontal

dots per inch while the second refers to the number of vertical dots. You may encounter a one-number dpi; a resolution such as 1,200dpi suggests that the printer you're looking at has a resolution of 1,200 x 1,200 dpi. Generally speaking, the higher the dpi, the sharper the text or image. If you have a 600 x 600 dpi printer, you'll notice rough or jagged edges on your text and graphics if you compare them to the same documents printed with a 1,200 x 1,200 dpi printer.

HP's LaserJet1012 has a regular resolution of 600 x 600 dpi, but that resolution can be increased to 1,200dpi.

Unlike inkjet printers, which often require a high-quality paper to produce a high-quality print, laser printers don't have to worry about **feathering** (when ink spreads, causing an image to blur), so they can produce a high-quality image on low-grade paper. Of course, laser printers with a higher dpi also carry a heftier price tag. Compare images from each printer to see if the difference in output is worth the difference in price.

Your Need For Speed

Another performance criterion many users take for granted is print speed, which is measured in two ways: **fpo** (first page out) and **ppm** (pages per minute). Fpo is the time it takes for the first page to completely print after you click Print. Ppm simply refers to the overall speed with which a printer can finish a job. The more pages a printer can turn out in a minute, the faster it can process your print job and you can move on to your next task. If you are always trying to squeeze an extra second or

two out of the day, pay attention to these numbers.

The Dell 1700, a monochrome laser printer, has a first page out time of eight seconds and can print 25 pages per minute.

Results May Vary

Take the manufacturer's speed specifications with a grain of salt. Oftentimes when a company is testing a product, it will base its numbers on only one page of text. If you're printing numerous copies of the same page, you can expect your results to be close to the manufacturer's specs, but you may notice a decrease in production if you're printing a multi-paged document because it takes the printer longer to process it.

The Brother HL-2700CN color laser printer comes standard with a 300MHz processor and 64MB memory, which can be upgraded to 576MB.

The Processor Prospective

If you're going to be constantly printing high-resolution documents, memory and processor speed should be important to you. Partial prints or downgraded textual quality can be annoying symptoms of a printer that suffers from a slow processor. Make sure you get a printer that has enough memory to meet your needs. On most you also have the option to upgrade memory. Check to see if the printer

that has caught your eye has plenty of memory or has upgradeable memory components.

Do Your Duty

When considering a printer, it is important to have a good idea of how many pages you print in a month. Usually measured in pages per month, the duty cycle tells you the maximum number of pages you should print with that machine to get the longest life out of it. A small home laser printer might have a duty cycle of 10,000 to 15,000 pages per month, while your home inkjet might have a cycle closer to 3,000 pages.

The Magicolor 2300W from Konica Minolta is a color laser printer with a monthly duty cycle of 35,000 pages.

Toner Talk

It is always important to have the entire cost of ownership of a product in mind when buying. For a laser printer, this includes not only the initial cost of the machine but also the cost of replacing the toner cartridge and (every so often) the drum. If you're contemplating a color laser printer, consider one that has a separate cartridge for each color. That way, if you have a color cartridge that runs out before the others, you only replace one instead of replacing all three. When it comes to buying replacement toner, you will need to look at a couple different numbers: total yield and cpp (cost per page). **Total yield** is the number of pages your toner cartridge can produce. **Cost per page** estimates the average cost to print one page. Most

manufacturers base this figure on a page that has 5% coverage, but check to be certain.

Lighten Up

LED (light-emitting diode) printers have been lumped in with laser printers for as long as both have existed. Though most of us can't tell a difference in output, there is some divergence in the printing processes. While a laser printer uses one beam and a system of mirrors to attach a charge to the drum, an LED printer has a group of LEDs built over the width of the drum. As the LEDs selectively flash, they attach a charge to the drum. Because there are fewer moving parts, LED printers are generally less expensive. However, because LED printers have a set horizontal resolution, they can't take advantage of software enhancements.

The Bottom Line

With color and monochrome laser printers now offered in models geared toward home use, it is time to re-evaluate the way you print. If you need a new printer, a laser printer is a viable option. But if your current printer still has a couple of good years left, there's no need to scrap it. You may save a few cents a page using a laser printer, but keep in mind the higher initial cost. Subscribers can go to http://www.smartcomputing.com/printerchart to compare the cheapest monochrome laser printer on our Colorful Options In Black & White chart (the Brother HL 1400) to a midrange inkjet (the HP Deskjet 5740)—you'll find an average savings of only $.0245 per black-and-white page; you'd have to print over 2,040 pages (over five pages per day for a year) just to make up the initial difference in price. So feel free to make the switch to a laser printer, but don't necessarily feel rushed to do so unless it makes economic sense. ▮

BY SAM EVANS
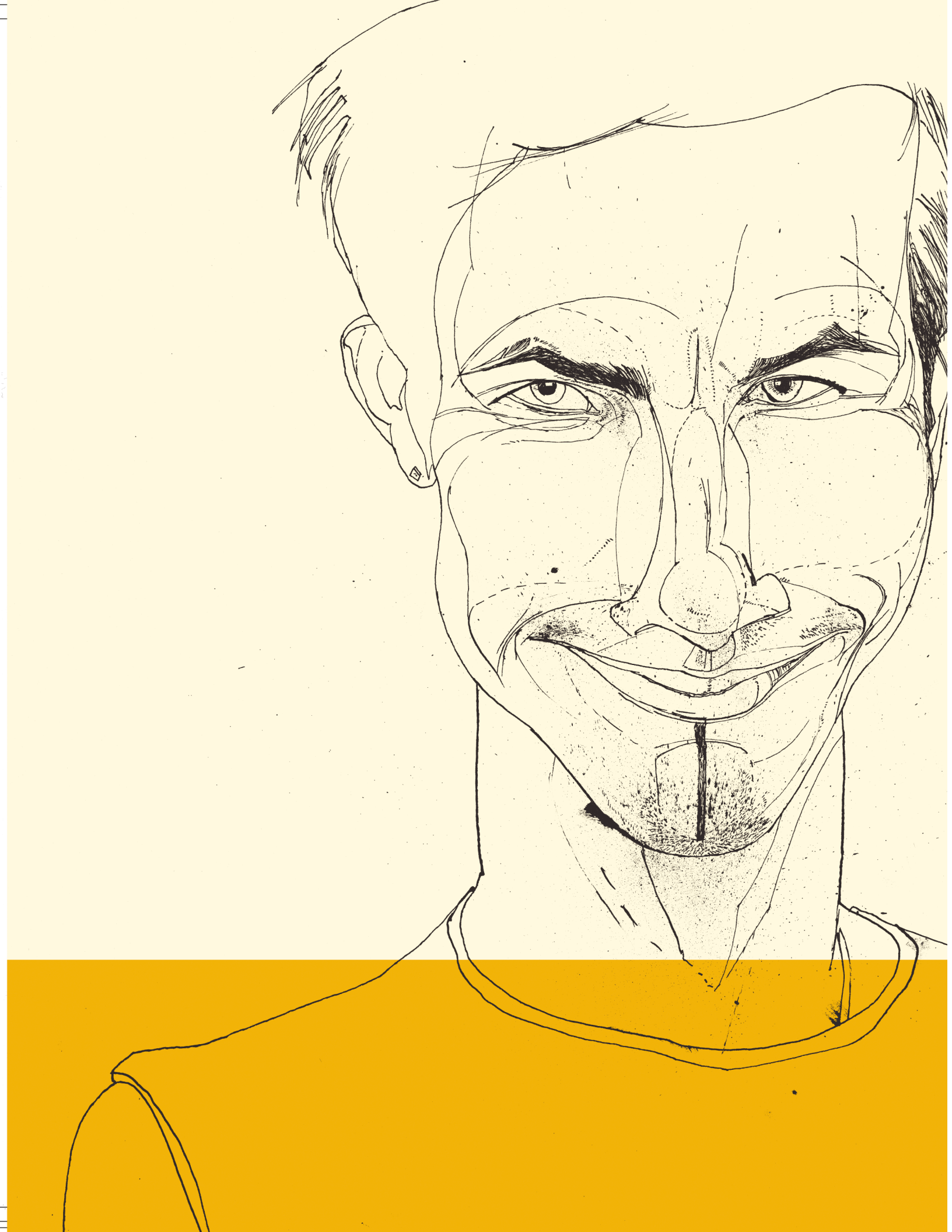
Have you seen these personal trainers you can get for your TV? They're awesome. I got one and **Now MY TV Is a Lean, Mean EntertainmEnt MaCHiNe**. Seriously, this little high-tech trainer has really whipped my television into shape. Now it only shows me programs about stuff I like, plus it plays music through my entertainment system and lets me look at digital photos huge onscreen. I mean, my TV was thin and all before, but now it's buff, too.

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24 (3)	Wed 6/30
The Daily Show	Tue 6/29
Six Feet Under	Fri 6/25
Alias	Thu 6/24
Goldfinger	Thu 6/24
Austin Powers	Wed 6/23
The Boiler Room	Tue 6/22

Doing The Firefox Trot

One question that frequently arises from readers who have followed my recommendation to try the life-altering Mozilla Firefox (http://www.mozilla.org) browser is, "Now that I've tried it and I'm going to continue to use Firefox, should I uninstall Internet Explorer?"

I wouldn't do that for several reasons, not the least of which is that IE is tightly integrated with Windows; if you attempt to delete it, the headaches gained will not offset the minimal benefits derived.

Also, because Firefox doesn't support ActiveX, there may be occasions when you'll want to use IE to view a site that won't display correctly in Firefox. To avoid the arduous task of launching IE manually, download Mozilla's free IE View extension at http://tinyurl .com/4wbcb. With IE View, right-click anywhere on a Web page and se-lect View This Page In IE.

Lastly, if you're thinking of making the spiritually enhancing switch to Firefox, purchase the Firefox Guidebook for $11.95 from Mozilla (http://tinyurl.com/3kva6). Like a relic from a previous era—not unlike Mr. Modem, I might add—the Guidebook is an all-too-rare hard-copy manual, with an actual index and real pages capable of inflicting real paper cuts. Entering this no-scroll zone will flatten your learning curve and reveal features you never knew existed in Firefox.

This'll Keep You In Stitches!

If you're a wanna-be surgeon, or simply curious about medical procedures, OR-Live (http://www.or-live.com) is just what the doctor ordered. It features a surgical potpourri of live broadcasts covering all types of surgeries, from pesky abdominal aortic aneurysms (I hate it when that happens!) to hip replacements, to various cardiac surgeries. A spleendid selection of information is available about the procedures so you can bone up in advance of each surgery, participate in discussion forums, and view archived surgeries. While not for the easily queasily, this site provides a fascinating glimpse into the everyday miracles occurring in operating rooms throughout the country.

Thwart Identity Theft

The Federal Trade Commission has created a universal form that victims of identity theft can use to alert retail stores, banks, and other institutions. Just fill out the form and provide it to any business where fraudulent accounts may have been opened. To obtain a copy of the FTC ID Theft Affidavit, visit http://tinyurl.com/6zcmc. Additional consumer and victim support is available from the good folks at the Identity Theft Resource Center, http://www.idtheftcenter.org.

Mr. Modem Mini Rant: Permission-Based Email

If you haven't bumped into permission-based email as an antispam "strategy," and I use the term loosely, it's only a matter of time. Conceptually, you can insulate yourself from spam by accepting email only from individuals to whom you grant permission. Pulleeeze!

I can't think of anything more annoying than receiving a question by email, re-sponding to it promptly, only to get an auto-generated "state-your-reason-for-contacting-me" form within which I'm supposed to request permission to email the person who contacted me in the first place! Hello? Memo to permis-sion-based mail users: If you initiate email contact with anybody, it is YOUR responsi-bility to clear the way for a response. 'Nuf said?

Changing Settings? You Need Not Apply

Most of us have been instructed since birth that when we modify Windows settings, we are to click Apply, followed by OK to save our changes, and exit. Psssst! Don't tell anybody, but you really don't have to click Apply first. (Insert gasp here.)

The next time you make any settings changes and see the Apply and OK buttons attempting to entice you with their clickable charms, try exercising the patented Mr. Modem ABB (Apply-Button Bypass) and just click the OK button. It has the same effect as clicking Apply followed by OK. Honest.

Drivers' License Records Online

And finally, at the National Drivers' License Records Bureau Web site (http://tinyurl.com/6p6no), you can search an online database of more than 220 million U.S. drivers' licenses, including numbers, license-related infor-mation, and unflattering drivers' license photos. I knew I should have smiled. It gave me the heebie-jeebies when I first learned about this Web site, but stop by, look yourself up, and then let me know what you think: Should this in-formation be available to anybody with Internet access? E-me at MrModem@smartcomputing.com. ▮▮

BY MR. MODEM

Mr. Modem (Richard Sherman) *is an author, syndicated columnist, radio host, and publisher. "Mr. Modem's Weekly Newsletter" provides personal responses to subscribers' computer and Internet questions, plus weekly computing tips, Web site recommendations, virus alerts, hoax warnings, and more. For additional information, visit* **http://www.MrModem.com.**

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Of The People, By The People, For The People

FirstGov.gov Puts Citizens First

★ ★ ☆ ☆ ☆ ★ ★

Imagine trying to run a business where you're serving millions of customers scattered across the entire country and beyond. They live in different cities, come from various educational backgrounds, and have diverse needs. For instance, one person wants your assistance before traveling abroad, another needs aid after an emergency, and yet another knows you can help her save thousands of dollars. Is attending to all these customers an impossible task?

Not if you're part of the U.S. government. While the government may get a bad rap as a bloated bureaucracy (even former president and avowed patriot Ronald Reagan once said the best minds aren't in government because if any were, business would steal them away), there's a Web site that is striving to change that impression. And once you visit this resource site, odds are good you'll see why that approach is working.

FirstGov.gov (http://www.firstgov .gov) is the official gateway to hundreds of thousands of federal, state, local, and tribal Web sites. An informative service for ordinary citizens and high-powered corporations, it links users to 25 million Web pages through an easy-to-use index and customizable search engine. If you're applying for a passport, researching your family history, or are a victim of an Internet scam, FirstGov .gov is a good place to start.

Government For The People

We'll begin our tour at the site's home page. The home page is sensibly laid out, with a graphical red, white, and

blue banner containing the search engine at the top, index on the left, and content grouped into topics in the center of the page. The center section is divided into four tabs: For Citizens, For Businesses And Nonprofits, For Federal Employees, and Government-To-Government. Because we're focusing on how the site is useful for the "regular guy," we'll go right to the first tab.

We've all experienced the frustration of waiting in line at the department of motor vehicles or trying to wade through tax documentation. Perhaps that's why FirstGov.gov's citizen section leads off with Get It Done Online, a list of tasks that you can begin and often complete online. These include such chores as finding government benefits, renewing your driver's license, applying for Social Security, and contacting elected officials.

Click Change Your Address, and you'll be transported to the United States Postal Service's Change Of Address form, where you can request mail forwarding. Click the Get A Passport Application link to travel to the State Department's Bureau Of Consular Affairs where you can print a PDF (Portable Document Format) file. The site provides information on how to download Adobe Acrobat Reader.

FirstGov.gov is the place to start when looking for government-related information.

If you don't see the task you'd like to perform, click More Online Services at the bottom of the Get It Done Online section. This calls up an alphabetical list of topics, from Address Changes When You Move to Zip Code Lookup, with more than a hundred other items in between.

Below Get It Done Online sits another well-organized section, Information By Topic. If you don't know exactly what you want to research at FirstGov.gov, this is a great resource for browsing. This area contains more than a dozen extensive categories, including Benefits And Grants, Health, and Public Safety And Law.

With identity theft and online fraud on the rise, we suggest you take a look at Consumer Protection. Click this link to see an alphabetical list of subtopics such as Credit Reports For Free or Student Scholarship Scams. In the former, you'll learn how to get your credit report for free (the government has begun a regional rollout, and by September 2005, all Americans will have access), while in the latter you'll find out that "I just need your credit card or bank account number to hold this scholarship" or "You've been selected by a 'national foundation' to

The For Citizens section makes it easy to take care of business online.

receive a scholarship" are statements that—as you probably suspected—indicate a program is likely too good to be true.

The Information By Topic section isn't strictly limited to what you might visualize when you picture government-related sites, however. True, each site listed is produced by some federal or lower level of government agency, but the sites have a broad scope. Consider the History, Arts And Culture section, for example. The Art And Architecture subtopic links to the National Endowment For The Humanities federal agency, but it also takes you to Planet Earth As Art, which contains fascinating images captured by the Landsat-7 Satellite. And although the History subtopic links to State Historic Preservation Offices sites, it also can help fill you in on past events via the Today In History link.

Back on the main For Citizens tab, you'll notice a group of boxes on the right that highlight special features. FirstGov.gov also categorizes topics according to the groups they might
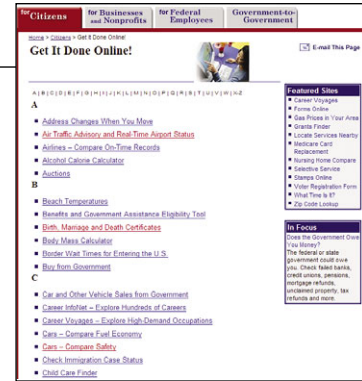
interest. In the By Audience area, click Seniors for information vital to the elderly or click Americans Abroad to learn about adoptions from other countries. The other two boxes highlight news and events, and therefore, they change regularly.

Organizations Find Help, Too

While FirstGov.gov's benefits for the average American are clear, there's also plenty here for nonprofits, businesses, and other groups. Next to the For Citizens tab lies the For Businesses And Nonprofits tab, and it resembles the For Citizens section in look and feel, albeit with a corporate twist. In Get It Done Online, for instance, you can quickly find out how to contract with the U.S. government, register an employer ID number, or get a state business license. Under Information By Topic, you'll find items of interest to large organizations, such as exporting to Asia and running a minority-owned business. Also, be sure to check out the Top Requests area, where you can do your homework on obtaining a small business loan and pick up tips on successful bulk mailings.

There are also sections devoted entirely to those working for or in all levels of government. In the For Federal Employees section, also organized according to the same layout scheme as the For Citizens section, you can take advantage of online tools for comparing per diem rates, updating personnel-payroll information, and calculating group life insurance

Tips For Using FirstGov.gov

Got questions? Get answers. The FirstGov.gov site has an extraordinarily comprehensive amount of data, but if you can't find what you're looking for, the Citizen Response Team is there to help. It's easy to skip past the tiny icon of Uncle Sam in the left panel, but if you click the E-mail Us Your Questions link and send a query about the U.S. government, the site promises a response within two business days. And in our experience, it delivers on that promise.

Involve your kids. Most of the FirstGov.gov site is targeted toward adults, but the FirstGov For Kids site can be informative and entertaining for the younger generation. Here they can go on a Web treasure hunt, get help with homework, pick up safety tips from McGruff the Crime Dog, and more. From the For Citizens tab, click the Kids link in the By Audience box.

Go beyond black and white. FirstGov.gov is packed with statistics, facts, and other data, and much of it is written down in black and white. But there are other references that provide a colorful look at the world: the site's maps. In the Reference Center, scroll down to the Maps section and click Local, National, World And Specialized Maps for a wide range of map topics, including health, weather, historical, and environmental.

coverage. The Government-To-Government section, on the other hand, helps state employees with budgeting, local employees with community development projects, and tribal leaders with telecommunications services, to name just a few topics.

Let's head back to the home page to discover what else the site has to offer. Another way the site designers have organized the information is by government agency. If you know the name of a federal, state, local, or tribal organization, or if you simply want to find out which agencies deal with which concerns, the By Organization section at the top of the left navigation panel is your best destination. This section, which also appears on every FirstGov.gov subpage, contains a comprehensive directory of the entire government. Click the A-Z Agency Index to see entries for hundreds of organizations, beginning with the 9-11 Commission and ending with the Wyoming State, County And City Websites.

The organizations also are broken down by function, including Federal Executive, Federal Legislative, Federal Judicial, Cross-Agency Portals, State Government, Local Government, and Tribal Government. Let's take a look at the State Government link. Not surprisingly, it alphabetically lists state government home pages, but it carries other interesting resources, as well. Browse a bit, and thanks to the Statistics By State And Local Area, you'll learn that Ohio has exactly 116,964 miles of public roads

(compare that to relatively tiny Vermont, which boasts only 14,273 miles of public roads). Or, if you prefer pictures to statistics, check out the State Photo Galleries for images of Amish farmers in Delaware or bald eagles in Minnesota.

FirstGov.gov is essentially a reference site, so we were curious as to what made some topics so notable they were placed in a special Reference Center, toward the bottom of the left panel. We soon found that this is where the traditional reference materials exist, such as manuals, directories, and searchable government databases. For instance, you can take a peek at the list of commonly used federal acronyms, locate federal depository libraries, and view various publications from the government printing office.

In addition, however, you'll see a variety of nontraditional reference materials. Does the phrase "We the people of the United States" ring any bells? How about "government of the people, by the people, for the people"? Or "Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted"? To read the full texts of the Constitution, the Gettysburg Address, the Bill of Rights, and other historical documents, scroll down to the Historical Documents section. Be sure to take a look at the Data And Statistics and Laws And Regulations sections, too.

Lastly, sandwiched between By Organization and the Reference Center is the place to go when you've had your fill of data and need a little human interaction. Here you'll find phone numbers, email addresses, and other contact information for government officials from your town mayor to the president.

After spending some time at Firstgov.gov, we'd like to add to

President Reagan's remark. While we won't go so far as to say that businesses steal the best minds away from the government, we do know where those keen intellects are likely to be hanging out. If they're looking for government-related information, the wise ones will be at FirstGov.gov. ▮

BY H**EIDI** V. A**NDERSON**

FACT SHEET

FirstGov.gov

When you visit FirstGov.gov, you're likely to stumble upon all sorts of impressive statistics. But there are other, equally fascinating stats that you won't find, because they're behind the scenes. Like the statistic that an estimated 70 million people visited the FirstGov.gov site in fiscal year 2004, up from 63 million the prior year and 33 million the year before that. And the fact that more than 200,000 sites link to FirstGov.gov. Or the number of page views the site served up the last fiscal year: 200 million.

That's a lot of business for a site that didn't even exist five years ago. It all started in the late Clinton administration when the White House Working Group created the U.S. Nonprofit Gateway. After that site was launched, the government received numerous requests from citizens to expand the site's services. In stepped entrepreneur Eric Brewer, whose early research was funded by the Department of Defense. Brewer donated a search engine to the government, and the FirstGov.gov site launched September 2000. Today it is an interagency initiative administered by the U.S. General Services Administration. Site visitor numbers continue to rise, and with the recent introduction of the FirstGov en Espanol version, it likely will see significantly more visits from the 28 million Americans who speak Spanish at home. ▮

The National Highway Traffic Safety Administration is just one of thousands of sites you can browse or search via FirstGov.gov.

Enhance Your Time Online

A Tip For Cruise Tipping

Problem: I'm taking my family on a cruise, and I can never figure out whom and how much to tip. Then when I figure it all out, I'm stuck with the wrong denominations to separate out. **Solution:** Tip-calculation software generally gives you a quick calculation of 15% to 20% of a total bill. But if you're looking for real precruise preparation help, sail on over to the Cruise Tip Calculator (http://members.aol.com/CruiseTip). This amazingly handy tool allows you to select from one of 10 cruise lines. Enter the number of days of your cruise and the number of passengers. The form then loads the staff members and cruise line's suggested daily tip amount. Finally, if you enter the actual amount you would like to tip each person, the form will calculate the denomination of bills you need to put in each tip envelope. All that's left is to enjoy your cruise.

Presentation Templates Aplenty

Problem: I'm growing bored with the standard presentation templates that are included with Microsoft PowerPoint. How can I jazz up my presentations? **Solution:** If you do a search for "free PowerPoint templates," you will find a lot of sites that are actually commerce sites looking to sell you a collection of templates. Oftentimes, their free offerings are limited to a scant handful of templates.

But if you're looking for high quality, high quantity, and absolutely no cost, check out the digital studio of Sonia Coleman (http://www.soniacoleman.com/templates.htm). She has posted 29 sets of free PowerPoint templates, each including a matching blank button.

Getting The Best Digital Prints

Problem: I'm getting more and more into digital photography. But after I spend all this time editing my photos, my prints come back looking different than they did on-screen. **Solution:** If correct color is important to you, consider managing the color profile of the printer you use to get prints made. Most stores that offer to make prints from your digital camera, including Wal-Mart and Costco, have specific printer profiles you can use to match the colors you see with the colors you get. A good listing of these profiles can be found at Dry Creek Photo's profile database (http://www.drycreekphoto.com/Frontier/FrontierDatabase.htm). You'll find instructions on using profiles, as well as a state-by-state listing of specific stores' profiles. The database also lists locations outside of the United States, including Canada and Europe.

What's In A Name (Generator)?

Problem: I'm looking for suggestions for a baby's

Make your PowerPoint presentations stand out with some free background templates.

name, but everything I've found is either too common or too weird. **Solution:** Well, it sounds like the Kleimo Random Name Generator (http://www.kleimo.com/random/name.cfm) may be your best bet. This generator uses data from the U.S. Census to randomly offer up suggestions. But best of all, you can choose an "obscurity factor" from 1 to 99. Name generators are also great for writers looking for character names.

All The St. Patty's Day Parades

Problem: I want to show some Irish cheer this year. How can I find a St. Patrick's Day parade near my town? **Solution:** Get out your green and get ready for the Web's most comprehensive listing of 2005 St. Patrick's Day parades (http://www.aviso.net/dir/usa/irish/events/stpatrick.htm). This site has a number of Canadian parade locations and even a small bunch from Japan, Germany, and South Korea.

Worry about preparing the staff tips before, not after, your cruise with this handy tip calculator. It's useful for both experienced and first-time cruisers.

Step Into Spring

Better Homes And Gardens

http://www.bhg.com

Better Homes and Gardens opens much of its Web site to the public, so we turned to its house care experts for some spring-cleaning tips. Not surprisingly, the site has dozens of spring-related articles and recipes. To find them, simply type **spring cleaning** in the Search field. The Spring's Finest Recipes slideshow is our favorite: As you flip from one mouthwatering picture to the next, you can click links to display recipes.

Home Made Simple

http://www.homemadesimple.com

If your house isn't as springy as the weather, visit this clean, well-organized site. You'll find plenty of articles about taking care of and enjoying your home, including tips for cleaning your house—inside and out. Once you complete the indoor Spring Cleaning Tips section's thorough (and printable) checklist, you'll be ready to put your feet up, but the site has a slew of outdoor cleaning tips that will fill up another weekend or two. You can find the indoor tips by clicking Organized Life on the main page, See All Past Articles, and Spring Cleaning Tips. To find the outdoor tips from the main page, click Outside Pleasures, select See All Past Articles, and scroll down to Outdoor Spring-Cleaning.

International MOMS Club

http://www.momsclub.org

After being cooped up in the house all winter, kids can't wait to get into the backyard and the spring sun. Unfortunately, weather has one more cruel trick in store for them: days and days of rainy weather. If you're looking for a kid-friendly, indoor activity that doesn't involve a television or video games, try digital coloring pages. MOMS Club offers support to mothers around the world and has several excellent spring coloring pages. But beware: If you had a hard time staying inside the lines as a child, you'll quickly become addicted to this new, easy coloring method.

Kids Domain

http://www.kidsdomain.com

The Kids Domain has more kid-friendly activities than you're likely to see anywhere else, so if you're limiting your children's online travels, mark this Web site in the Good column. The site has its fair share of ads, but it also has tons of recipes, stories, and other fun projects. If you're shaking off the cold of winter, click Holiday Fun and then Spring. The section has information about several springtime holidays, as well as crafts, stories, and some great games. The games don't really have much to do with spring, but they're fun, so we're not complaining. We recommend Don's Dugout, a particularly old but exciting game that involves monsters and a mole.

LifeTips

http://lifetips.com

LifeTips relies on its wise (we hope) Gurus to provide what it calls The Online Owners Manual For Your Life. The enormous Web site links to dozens of topic sections ranging from childbirth to funerals, each of which has tons of tips. To find out what tricks the Cleaning Guru recommends, click Home Life/Shopping and then click Cleaning under Home. You can sign up for the Cleaning newsletter, buy sponsored products at a discount, and dig up a few cleaning tips about dusting and window-blind cleaning.

OrganizedHome.com

http://organizedhome.com

If your spare bedroom resembles a landfill, you may need a little support before you devote the next few weekends to the cleanup project. Luckily, we've found a site that will motivate the staunchest couch potato. As with many other sites, OrganizedHome.com has articles and checklists (including a multipage spring cleaning list), but it also boasts a cleaning community. You'll find a gallery of before/after cleaning photos and forums in which members (membership is free) trade tips and tricks about cleaning and organizing their homes and lives.

That's
News
To You

Finding the appropriate Usenet discussion group to match your interests can be a monumental task. So each month, we scour tens of thousands of newsgroups and highlight ones that delve into popular topics. If your ISP (Internet service provider) doesn't carry these groups, ask it to add the groups to its list. This month we grab our rackets and head to the courts.

rec.gardens

Can't identify the plant that appeared last week and now threatens to swallow a corner of your garden? Post a description to this friendly group. You'll find that members here are happy to answer questions and have many of their own.

rec.sport.tennis

If you like to talk tennis, you'll love this outspoken group. Members discuss individual player careers and matches, argue about bad calls, and quibble over endless what-if scenarios.

misc.consumers.house

Not sure what that weird handle is on the pipe under the sink? You may want to ask around before you twist it. Homeowners here offer years of experience that makes for (usually) good advice and some interesting stories.

Share The Wares

Some of the best apples in the online orchard are the free (or free to try) programs available for download. Each month we feature highlights from our pickings. This month, we stop to smell the digital roses.

Garden Organizer Deluxe
http://www.primasoft.com

There are those who can walk through a garden, identifying plants left and right without hesitating. If (like us) you're not one of these people, you'll need to record plant names to keep track of your garden's leafy inhabitants. Enter PrimaSoft's Garden Organizer Deluxe, a program that lets you record detailed information about each and every plant. Each record lets you indicate what type of soil the plant requires, what time of year to plant, when it will bloom, and what type of light suits the plant, but that's only a few of the program's many fields. If you have trouble putting blooms to the names, you can take digital pics of your plants (assuming you have a digital camera, of course) and import the pics to your records.

Rainy day? Tend to your garden from the comfort of your desk. Garden Organizer Deluxe helps you keep track of each plant's special needs.
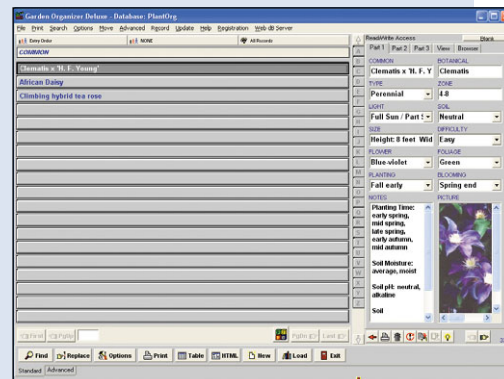
Even computing newbies will find their way around Garden Organizer Deluxe without any trouble, thanks to a few tabs at the bottom of the window. The tabbed features import records, create tables, export your data to HTML (Hypertext Markup Language) pages (for the Web), print records, and even close the program. If you're a garden software guru, you can click the Advanced tab to access extra goodies, such as the Password feature and additional sorting tools. And all users can easily set reminders that will appear on specified dates. PrimaSoft offers a 45-day, unrestricted trial version and sells the software via download and CD for $65.
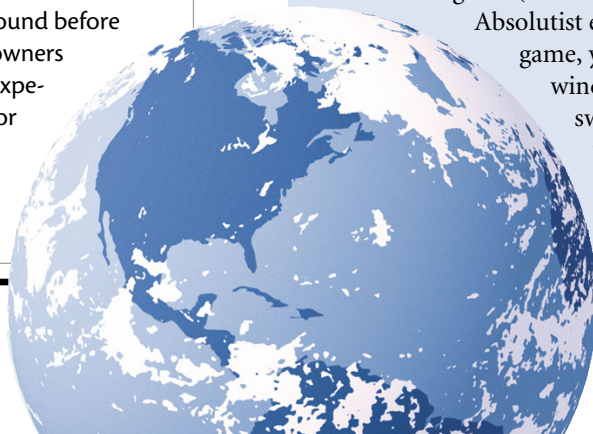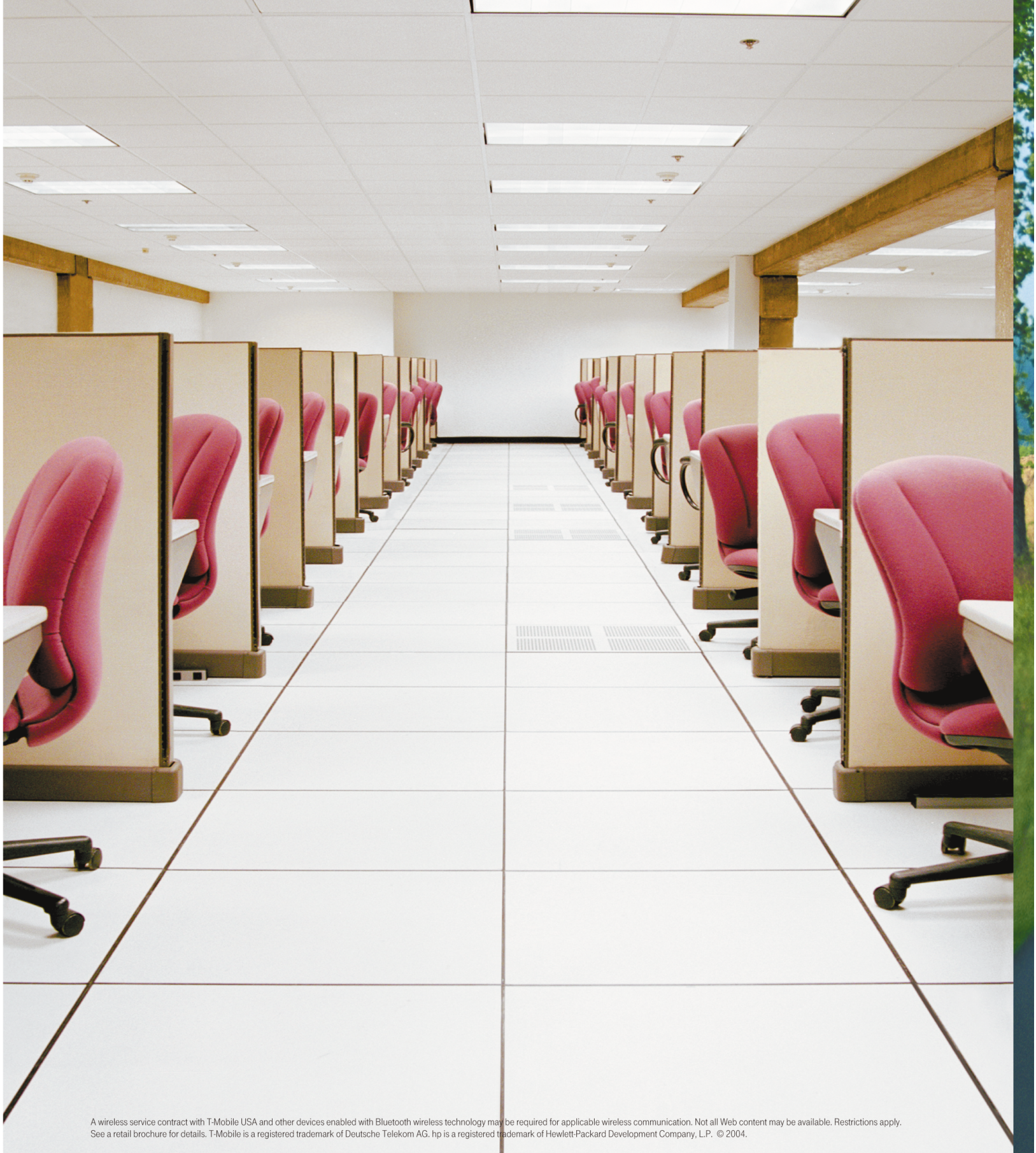
Flower Power
http://www.absolutist.com

If you're looking for cheap springtime fun, you're looking for Flower Power, a free puzzle game: Once you download the game, you'll need to register (make sure you have a valid email address, as Absolutist emails you a registration code). To play the game, you'll click dozens of flowers that fill the window. The flower and several nearby flowers switch places and explode in a burst of petals when they land near identical flowers. To find Flower Power, click Puzzle at the top of the main page and then scroll down.

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Introducing the new HP iPAQ h6315 Pocket PC only from T-Mobile. It's the all-in-one device that lets you go into the office, without going into the office. Get the most *WHENEVER* minutes,® unlimited e-mail and unlimited Web browsing, plus Wi-Fi access at thousands of HotSpot locations nationwide. Find out more at www.t-mobile.com/ipaq or call 1-800-TMOBILE.
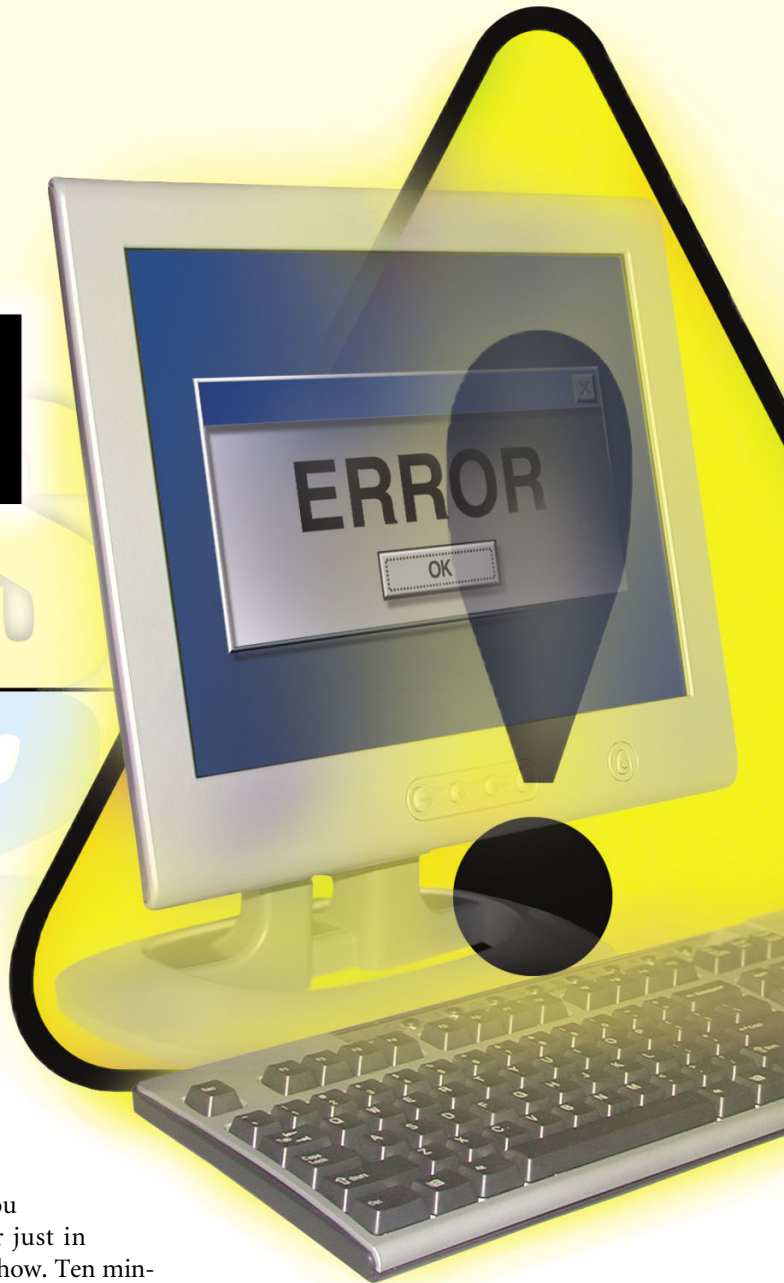
You really should get out more.
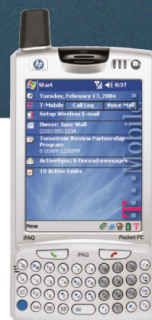
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Crash Control

Target The Common Causes Of Crashes & Lockups

O n a blustery winter evening, you cozy up in your favorite chair just in time to catch your favorite TV show. Ten minutes into the show, the image darkens to a sinister-looking black, prompting you to scald your lip on your steaming hot chocolate. You turn off the TV and turn it back on, but this time there's nothing but static.

Unless you have a background in TV repair, you're not about to go digging in the back of the TV set to fix a problem, but you don't necessarily need a degree in computer science to diagnose and fix your PC when it crashes. For all the grief that computer crashes cause us, at least we can troubleshoot the problems ourselves. Let's take a look at the most common crash culprits and what you can do to resolve them.

Power Problems

Although it seems like a no-brainer, lack of power is one of the most common causes of computer crashes.

Whether the problem stems from wiring problems below your desk or a local power outage, without the proper amount of power, there's no way your PC is going to function correctly. Because problems relating to power are so common, it's best to check for them first if you experience a crash that turns off your computer. Power problems also can lead to system freezes, though we can often pinpoint other causes when freezes occur. If your computer suddenly turns off, check for the following potential power problems.
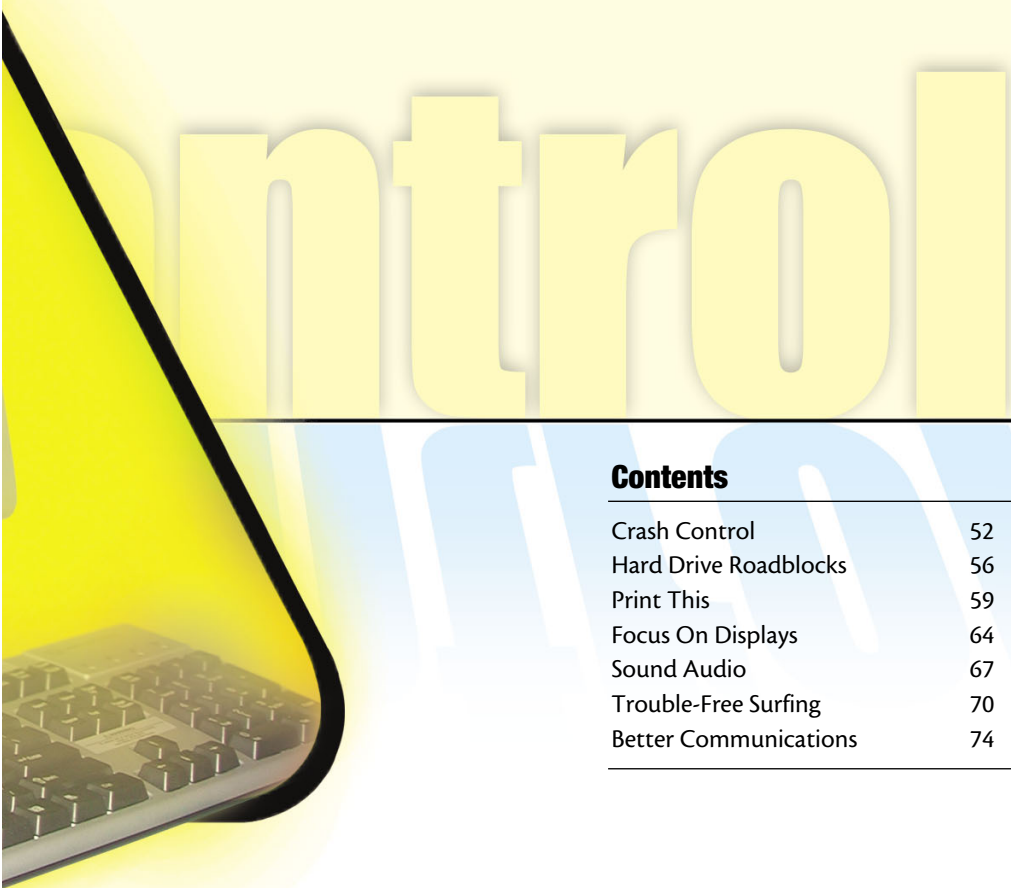
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Check for electricity throughout the house. If nothing else works, there could be a power outage in your area. To rule out a problem within your house, examine the circuit breaker or fuse box to make sure everything is operating properly. If it all seems to be in order, you'll just need to wait for the power company to restore power to your area.

Is a storm to blame? If your PC shut off on its own during an electrical storm, it may have suffered a power surge caused by lightning. First, wait until the storm completely passes and no lightning is present in your area. If you have a surge protector, press the reset button and turn on your PC. If your computer doesn't turn on, plug it directly into the wall outlet and turn it

on. If it doesn't turn on at this point, it's possible that your motherboard suffered damage from the surge and might need to be replaced.

Power supply death. Although power supply units are generally dependable for the life of a PC, they can occasionally die. If the rear fan on the unit isn't working, or if nothing happens when you press your PC's power button, try swapping the power supply with another one to see if it did indeed die. If so, you'll need to replace it.

Untangle the mess. Entangled wires can easily yank each other around when you move components on your desk and remove cords from sockets. Unfortunately, it's also easy to accidentally kick wires loose or kick off the power button on a surge protector.

Make sure that the cord connected to your computer's power supply is firmly attached to both the power supply and the surge protector or wall socket.

Too Hot To Handle

Believe it or not, snowmen (or perhaps we should say snowpeople) and computers share a mortal enemy: heat. As components inside your computer shrink in size but grow in performance, they tend to run much hotter than older, slower components. This increased heat can easily lead to crashes, lockups, or even permanent damage to hardware in extreme cases. Luckily, troubleshooting overheating issues isn't particularly difficult.

Monitor heat. Use a monitoring utility, such as Motherboard Monitor (free; http://mbm.livewiredev.com), to gauge your CPU's temperature and keep tabs on internal fans. Some motherboard manufacturers (such as ASUS; http://www.asus.com) also offer free utilities that work specifically with their motherboards.

Check the fans. Make sure all internal fans are operating properly when your computer is running. First, check the back of your PC case to make sure the power supply fan is functional. Next, turn off your PC, remove its cover, and turn the PC on, taking care not to touch any internal components while the PC is running. Locate all the fans and confirm they're running; these fans could include the fan on the CPU, the video card, and the motherboard chipset, as well as any case fans in the front or back. If any of these fans aren't running, turn off the PC and check the wiring to make sure they're receiving power. If the wiring appears intact but the fan doesn't operate, you'll need to replace the fan.

Be a neat freak. Keep the inside of your computer case free of dust and clutter. Even with functional fans, computers can overheat if too many cables are restricting airflow or if front or rear air vents are clogged with dust

and pet hair. Use plastic cable ties to carefully wrap cables together and tie them out of the way of fan paths. Use compressed air to blow dust and grime out of the case.

Infection Detection

Although some of the most effective viruses, worms, and Trojan horses perform their dastardly deeds without affecting system performance whatsoever, others can wreak major performance-related havoc in a Windows environment. If you suspect that malicious code is causing crashes, lockups, or other strange behavior, perform the following steps.

Update virus definitions. Download and install the most recent set of virus definitions for your antivirus software. If you're not using antivirus software, download and install Grisoft's free AVG Anti-Virus from http://www.grisoft.com.

Run a full virus scan. If the program finds a virus when you scan your PC's hard drive(s), follow its recommendations for getting rid of it.

Use anti-spyware. Although they're not always considered malicious, spyware and adware can lead to instability just as easily as viruses. Use a free, effective anti-spyware application such as Lavasoft's Ad-aware (http://www

Running a full virus scan on your hard drive(s) is a good idea if you encounter a crash you can't explain.

.lavasoftusa.com) and/or Patrick M. Kolla's Spybot Search & Destroy (http://www.safer-networking.org) to scan your hard drive(s). Quarantine any suspected entries until you can determine the cause of your crash(es).

Sorry Software

In a perfect world, the software we install would run perfectly from the moment we install it and continue to do so indefinitely. Of course, this isn't a perfect world, and software is often buggy, unreliable, and outdated, in addition to being a prime instigator of crashes.

Reinstall new software. If you recently installed a program and now

your PC is crashing, try uninstalling the program and then reinstalling it. Even if a program appears to install correctly, problems can occur down the road if the conditions during the installation weren't ideal. To help ensure that the installation goes smoothly, close all open programs before installing the new program and make sure you wait until the installation finishes completely.

Patch it. If reinstalling a program doesn't end your computer's crashing woes, check the developer's Web site for updates or patches for the software. Many developers update their programs regularly, and by downloading and installing a patch, you can fix problems inherent in the previous version of the software.

Update drivers. Hardware-related crashes aren't always caused by the hardware itself but rather by the software that tells the computer how to operate the hardware. Called **drivers**, these small programs can be extremely finicky, so it's a good idea to use the most current drivers for the devices on your system. Even if you just bought a brand-new device from a store, the driver(s) included with that product could be so outdated that using it might create system instability. Fortunately, most companies place the most recent drivers for their products on their Web sites, so check online for new drivers.

Start It Up, Shut It Down

No crash, lockup, or freeze is more mystifying than the one that happens when you're trying to start up your PC or shut it down. After all, when we turn on our computers, we expect them to turn on *now*, and when we shut them down, we want them to

If your computer shuts off suddenly, make sure the power cord is firmly inserted and the power supply fan is running.

shut off *immediately*. If you encounter startup or shutdown problems, try to do the following tips.

Rely on Safe Mode. If Windows freezes upon startup, reboot in Safe Mode by pressing F5, F8, or CTRL repeatedly as soon as your PC restarts and selecting the Safe Mode option. This option starts Windows with a minimal configuration that's helpful for troubleshooting. If you recently installed a program, try uninstalling it from Safe Mode and restarting your PC. If it starts, either reinstall the software and try again or visit the developer's Web site for a patch or instructions that solve the problem.

Check new hardware. If you recently installed a device, try reinstalling it. If Windows still hangs during startup, boot into Safe Mode and look online for updated drivers for the device.

Clean the Temp folders. If your PC won't shut down, reboot it and try cleaning out your temporary folders to delete any files that could be causing problems. From the Start menu, click Programs (All Programs in Windows XP), Accessories, System Tools, and Disk Cleanup to find and delete files in your temporary folders.

Get to know the Event Viewer. An effective tool for diagnosing freezes or crashes during startups and shutdowns in WinXP is the Event Viewer. First, jot down the time when the startup or shutdown problem occurred. Next, right-click My Computer, click the plus sign (+) beside System Tools, select Event Viewer, and double-click System in the pane on the right. Match the approximate time in the time column with the time you previously noted and double-click any errors or warnings that appeared in the log during that time. These entries can help pinpoint specific problems with hardware, software, or Windows that are preventing your computer from properly turning on or off.

Memory Madness

Just as some of us have trouble remembering Friday's work assignments on Monday morning, your PC can experience its own memory problems for a variety of reasons, ranging from installation problems to insufficient resources. Here are a few potential hotspots to consider when troubleshooting memory-related crashes.

Recheck memory modules. If your PC crashes during the initial boot phase (before you see the Windows Welcome screen), you probably have a hardware problem. If you recently installed RAM, shut down and unplug your PC, shut off and unplug its components, open your PC case, properly ground yourself, and make sure the memory modules are securely seated in their slots. If you still have trouble, remove all but one of the modules and reboot. If the boot is successful, replace
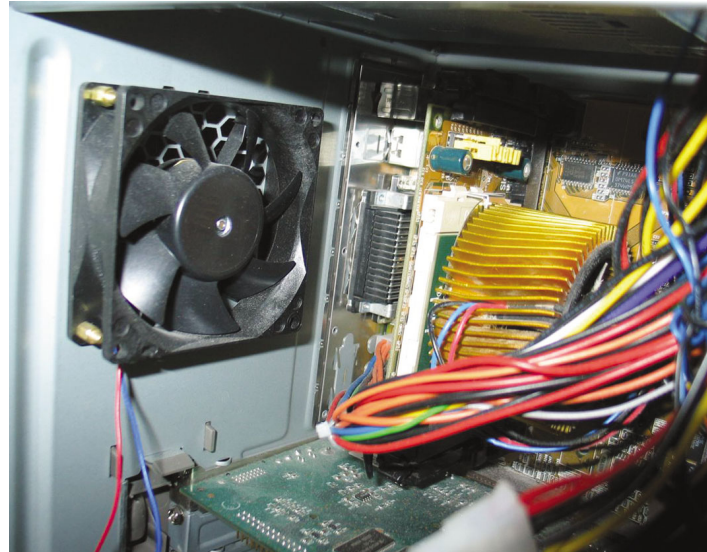
Check all the fans inside your case, such as this rear case fan, to make sure they're all functioning properly while your PC is running.

the other modules one at a time until you isolate the bad one. Some motherboards are picky when it comes to module placement, so you also can try to rearrange the modules in different memory slots until you find an arrangement that works.

Add memory. Although lockups are often attributed to specific problems with software and/or hardware, sometimes they're caused simply by a lack of memory. If your PC tends to freeze when you have several applications open at once or when the computer is performing multiple tasks, you might be able to avoid the problem by adding more memory to your system.

No Crash Dummies Here

If you fear the unknown, you're probably terrified of crashes because there are usually multiple potential causes for any single crash. Yet, by narrowing down your troubleshooting based on the type of crash and what you were doing on your computer before the crash, you can drastically reduce that unknown factor and get back on track to smooth computing. ▐▌
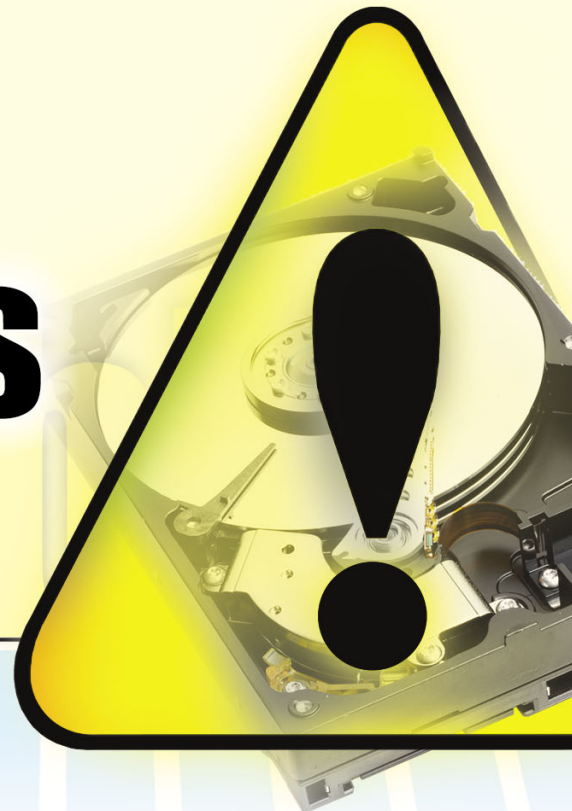
BY CHRISTIAN PERRY

If the memory modules you just installed aren't correctly and securely seated in their slots, your computer could hang during startup.

Hard Drive Roadblocks

Use Our Solutions To Put Your Drive Back On Easy Street

Whirr. Click. Whirr, whirr, *clunk*. "Uh-oh," you think. "This old PC hasn't made *that* noise before."

Sometimes, when a hard drive starts to fail, it won't even make a sound to go along with that sudden sinking sensation you'll feel. The ailing drive may simply pepper your Windows Desktop with error messages, if it even lets the OS (operating system) boot up at all. Because your hard drive is the permanent home for nearly all of your data and applications, its failure can cause a major headache. But how do you know if the hard drive is really going south? Could that "whirr, clunk" be coming from something else? And what if the errors you see in Windows are due to an application problem or even a virus? It's important to know how to troubleshoot common hard drive glitches so you can fix your problem with the least amount of hassle and money.

Different hard drive problems can manifest themselves in similar ways, such as error messages and malfunctioning applications. Because of this, many of the tips below have different solutions for essentially the same questions. Windows 2000 users may have similar steps to follow as our Windows XP instructions; likewise for Windows 95 and Windows Me users and our Windows 98 directions.

Physical Glitches

Hard drives store data as magnetic charges on spinning aluminum or glass disks inside a sealed metal and/or plastic case. Drives use armatures to move read/write pickup heads over the surfaces of the disks, or platters, similar to the way a record player moves its needle across a vinyl record. Hard drives are inherently fragile devices, but new ones are much more reliable than older models. Even so, all devices with moving parts eventually wear out, so long-running drives develop minor or major physical glitches over time. Here are some common symptoms of physical problems in a hard drive, possible diagnoses, and potential cures.

Problem: The hard drive makes a clicking, whirring, or grinding noise.

Solution: Nearly all hard drives hum and click a little during normal use, so we'll assume the noise is a new one. First of all, make sure that the source of the sound isn't the floppy diskette drive, Zip drive, optical drive, or some other noisy storage medium. Also, make sure the cause isn't a cooling fan, as these do wear out from time to time.

A simple method to narrow down the causes of hard drive problems is to open apps and documents stored on the drive. If the noise only occurs when the hard drive LED (light-emitting diode) on the front of the computer case is lit, something inside the drive is broken. That's a terminal condition for a hard drive. Even a speck of dust between a drive's heads and platters can cause a loss of data, so just imagine what a bit of stray metal could do.

If you're still not sure what's so loud, turn off the computer and open its case. Whenever you work inside your computer's case, touch a bare metal object occasionally to dispel any static electricity in your body because an electrostatic discharge is deadly to electronic components. Disconnect the power cable from every device and fan except the hard drive, motherboard, and CPU heatsink fan, and then turn the computer on. If the noise occurs again, shut down the computer and
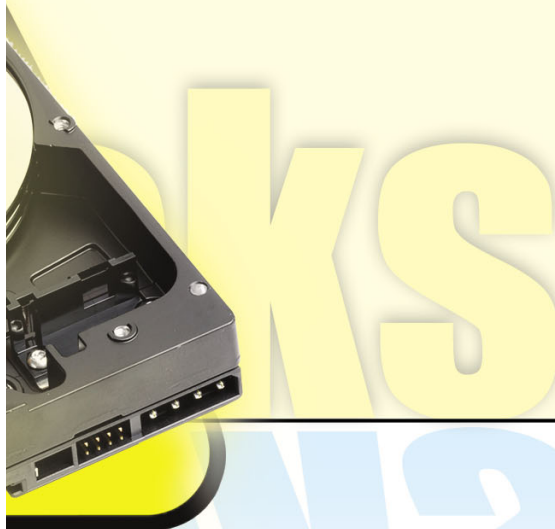
unplug the hard drive's power cable, and then turn on the PC again.

If your drive is the noisemaker, you'll need to replace it. First, though, back up as much personal data as you can. By personal data, we mean the documents, email messages, digital photos, and other files you've made. We recommend using a rewriteable drive and media or a second hard drive for your backups.

Problem: Windows can't find some files or says that files are corrupted.

Solution: Your hard drive may have developed some bad sectors, meaning that some of the tiny storage units on the platter(s) can no longer reliably store bits of data. This sometimes happens to otherwise healthy drives. However, if more and more sectors go bad over time, your drive is gradually failing.

Run a disk-scanning utility, such as WinXP's Check Disk or Win98's ScanDisk, weekly or monthly. These utilities can find bad sectors and map them as off-limits to new data.

In WinXP, click Start and My Computer. Right-click Local Disk (probably C:) and choose Properties.

Click the Tools tab and Check Now. Select both option boxes to enable a thorough surface scan and click Start.

In Win98, double-click My Computer. Right-click C: (or the letter assigned to your hard drive), click Properties, and choose the Tools tab. Click Check Now, Thorough, Automatically Fix Errors, and Start.

In any OS, if your hard drive has other partitions (sections with drive letters), such as D: or E:, run these utilities for them, too. And if you want your computer to run these utilities automatically, click Start and Help (Help And Support in WinXP) for instructions on using Task Scheduler. Also, don't forget to frequently update your antivirus software.

Problem: Windows can't find files or says that files are corrupted, part 2.

Solution: Cool it. Hard drives don't handle heat well, so make sure your PC's fans are working properly, and use plastic ties from a hardware store to carefully bundle cables out of the way for better airflow inside the computer case. Keep your computer in a climate-controlled room, and if the PC gets too hot, turn it off and let it cool. Likewise, don't let your computer room become too humid. If you move the PC from a humid environment, give the hard drive a day or two to dry out before starting the system.

Try to mount your hard drive so there is half an inch or more space above and below it. Make sure your drive is mounted flat or vertically at a 90-degree angle to the desk surface; any tilt could unbalance the drive and shorten its life. If your drive is the EIDE (Enhanced Integrated Drive Electronics) type, consider replacing the ribbon-style data cables leading to it, your optical drive, and your floppy drive with rounded replacement cables.

Problem: ScanDisk or Check Disk reveals some bad sectors on your hard drive, so you now want to know if it is failing.

Solution: Check your drive manufacturer's Web site for a diagnostic utility specific to your hard drive, such as Western Digital's Data Lifeguard Tools (http://www.western digital.com). If the manufacturer doesn't offer one, try Seagate's SeaTools (http://www.seagate.com /support/seatools). SeaTools accesses SMART (Self-Monitoring Analysis and Reporting Technology) for part of its tests, if the drive supports it, to check the drive's log of trends in its integrity and performance.

Download and run the diagnostic utility according to its instructions. For example, SeaTools will tell you how to install it on a diskette or CD, which you will use to restart the PC. If the utility says your drive is going bad, you'll need to replace it.

Problem: Your drive checks out OK, but you want to keep an eye on it in the future.

Solution: Barring a drop or electric shock, hard drives usually fail gradually. If you want your PC to tell you when your drive is likely to take the plunge, use third-party software such as Drive Health ($24.95; http://www .drivehealth.com) or Active SMART ($24.95; http://www.ariolic.com).

Inside a hard drive, such as this Western Digital Raptor (36GB), is a spinning disk (or disks) coated with magnetic recording material. An armature moves tiny read/write heads over the disk surface to save or retrieve data.

Problem: Your ScanDisk or Check Disk session often finds new errors.

Solution: Your drive is probably going to expire, but you can try a drastic step—**formatting** (erasing all data on the drive and preparing it to store new information)—to try and make use of its remaining good sectors. Make sure you know how to properly back up and restore your data and reinstall your OS and software before taking this step. But even if you don't, now is a good time to learn because your hard drive may not last much longer.

Most new retail hard drives come with software that lets you transfer the old drive's data to it, so spending a little on a new drive now will probably give you a lot of peace of mind later.

Software Issues

It's often hard to tell whether your drive's trouble is a physical defect or a problem in Windows or an application. And many times, tech support reps will just tell you to reinstall the application that's having problems. But if the program reports the same errors after you reinstall it, check the software vendor's Web site for a patch or update that might fix the problem. If different applications all share the same error, it's more likely a hard drive or Windows problem. Run drive-scanning and diagnostics utilities, and watch for new bad sectors over time. Reinstallation and patches may fix OS and application troubles, but you'll need to replace your drive if the problems keep recurring.

Problem: Your hard drive works, but it's really slow lately.

Solution: Hard drives sometimes take longer to retrieve data when they start to become full. First, uninstall any applications you don't use. Next, clean out junk files and defragment your drive, using the steps in the following paragraphs as a guide. For your convenience, add Disk Defragmenter to your

Task Scheduler just as you did with ScanDisk or Check Disk.

In WinXP and Win98, click Start and My Computer. Right-click the C: drive (do the same for each partition). Choose Properties and Disk Cleanup. Click the boxes of the files Windows considers unnecessary, and then click OK and Yes. Next, click the Tools tab and Defragment Now. In WinXP, select your hard drive under Volume and click Defragment.

The wrong data cable also can slow down a newer drive. Make sure your 2000-vintage or newer hard drive's cable is rated for 66MBps (megabytes per second) or faster transfer speeds, meaning it has 80 wires and 39 pins instead of 40 wires. Note that both types of cable will have 39-pin or 40-pin connectors. Also, make sure any optical or other drives connect to a different data cable than your hard drive (if possible).

Try to upgrade the **drivers** (software that enables hardware devices) for your motherboard or hard drive adapter to get a little more speed. In WinXP, click Start, right-click My Computer, and choose Properties. Select the Hardware tab and Device Manager, and then click the plus sign (+) next to IDE ATA/ATAPI Controllers.

Next, do the following for each item in that category, such as VIA Bus Master IDE Controller, Primary IDE Channel, and Secondary IDE Channel: Right-click the item, choose Update Driver, click Next for an automatic update (if Windows can find one), and click Finish. Right-click the item and select Properties and the Driver tab to check the driver's date and/or version. If the motherboard or card manufacturer's site provided you with a newer driver file than the one currently installed, click OK. Right-click the item and choose Update Driver again, but this time, select Install From A List Or Specific Location (Advanced) and Next. Click Browse, find the new driver file, and click OK. Follow the wizard's instructions to finish.

In Win98, right-click My Computer, choose the Device Manager tab, and

click the plus sign next to Hard Disk Controllers. For each item in Hard Disk Controllers, right-click it, and then choose Properties, the Driver tab (which displays the current driver's version), and Update Driver. Click Next twice. If you know the new driver's location, find it with the Browse button and click OK. If not, check all the boxes and select Next for an automatic search that won't be terribly thorough. Follow the instructions.

Trading Up

If your hard drive glitch is the "slow death spiral" type, don't despair. With 80GB retail drives selling for less than $100 these days, the cost is minimal for the capacity, speed, and reliability of a new drive. ▌▌

BY Marty Sems

Basic Troubleshooting Tips

Hard drive errors are sometimes hard to pinpoint. The best way to troubleshoot them is to try the easiest and cheapest remedies first, and then bring out the bigger guns if the troubles persist.

- Back up your personal data.

- Schedule routine sessions of Disk Defragmenter and regular hard drive scans with a utility such as ScanDisk or Check Disk.

- Uninstall and reinstall applications that are having problems.

- If errors persist or multiply, run disk diagnostics utilities, such as Seagate's SeaTools.

- If a diagnostics utility says your drive is still good, you might want to consider formatting it and reinstalling Windows, your applications, and your personal files. If the drive is bad, replace it.
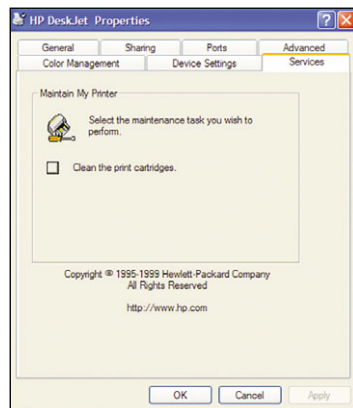
Print This

Troubleshooting Tips To Make Your Inkjet Printer Fit To Print

Although dropping your printer out of a five-story window might provide a temporary sense of relief from your printing-related frustrations, it's probably a bit rash. In fact, troubleshooting problems that plague inkjet printers can be simple and straight-forward if you have a handle on some troubleshooting basics. And even though we tend to dismiss common printing problems as the result of a defective printer, most often printer and printing problems stem from improper user maintenance or settings you need to change.

There are all kinds of printers and printing problems. It's impossible in the space of this article to describe every step needed to fix every problem for every make and model of every printer, but we can provide some solutions to common problems. It's important to

Most printers come with utility software that lets you service and clean the ink cartridges.

note at the outset that for safety reasons, you should unplug your printer if you plan on working inside the device for any reason. In addition to the electrical hazard, printers also can be very hot inside, so use caution.

The Silent Treatment

If your printer doesn't seem to be responding at all, we have a few solutions for you to try.

Check connectivity. Checking the basics right off the bat will usually save you time and grief. Check to see if the printer is plugged into an electrical source. It could be that power is not being supplied to the printer at all. The problem also may be the printer cable connected to the printer and computer ports, so make sure all your connections are secured tightly.

Check your applications. Check to see if you can print from another application. If you can, the problem lies with the original application, not the printer. Make sure that the application in question knows which printer it should be connected to. You can usually check this from the application's File menu. Click File, choose Print or Print Setup, and pick the desired printer from the selection presented.

Is the printer paused? If you can't print from any application, check to see if the printer is paused. Click Start and Control Panel, and then double-click Printers And Faxes (from the Printers And Other Hardware category). Right-click your printer and see if Pause Printing is selected. If it is, click Pause Printing again to resume printing. If the printer is not paused, try to print a test page to verify that communication from the PC to the printer is good: Right-click the printer, select Properties, and click the Print Test Page button on the General tab. Some printers may have a Test Page button (or button combination) located directly on the printer.

Is the printer online? Check the online status light, which is typically on the front of the printer. If the light is off or blinking, press the Offline/Online (or equivalent) button to bring the printer back online. If the light is on, try printing a test page. Some printers have a Test Page button (or button combination) on the printer itself.

Paper Jams & Scuffles

If the main component of your printing woes is paper, read the problems we cover in this section.

Problem: The paper isn't feeding into the printer properly.

Is the paper loaded properly? Most such printing problems stem from incorrect paper types or paper loading. Make sure that your paper is loaded properly, and that the paper type is made for your specific printer.

Check the hardware. If paper isn't feeding properly into the printer, the problem may stem from hardware failure. Check the feed assembly to see if all the parts are in working order. You may be able to manually advance the paper in order to see which component may be failing. If necessary, clean the paper pickup rollers to make sure the paper path is free of sticky debris.

Problem: The paper is jamming inside.

Check the print path. Open the cover to the printer and look inside to see if there are any pieces of paper or debris that may be blocking the print path. (Be sure to unplug the printer before touching anything internal to avoid electric shock.) If there is something blocking the path, remove it, close the printer, and try printing again. Also, check inside the printer to see if there are any loose components.

Check the feeder. Look at the paper feeder assembly to see if the paper is slipping. If so, the problem might be the type of paper you are using. The paper feeder requires some friction between the sheets of paper so the top sheet can be pulled into the printing

chamber. Because printers use many kinds of printing paper, check the printer manual to determine the specific paper type for your printer. Also check to see that the paper selection lever (if present) is adjusted correctly for the type of paper you're using.

Problem: The printer is feeding multiple pages at one time.

Check the paper type. When the printer is feeding multiple pages, it is often due to the type of paper. Because inkjet feed mechanisms are friction-based, there needs to be some friction between the intake rollers and the paper. If you are using paper made for a printer other than an inkjet, the intake rollers may not grip the paper properly, causing multiple sheets to feed at the same time.

Check the weight. Avoid mixing different paper types with different weights because this can cause multiple sheets to feed at the same time.

Don't overfill. Don't place too many sheets in the paper tray, as the printer may pull in more than one sheet. Look for an indicator inside the paper tray that will tell you what the paper limit is.

Is the paper curvy? Another common cause of feeding multiple sheets is paper that has become rippled or curved. You can usually cure this by removing the paper and flexing it back to normal. Excess humidity can cause this; if it occurs often, invest in a dehumidifier for the office or room.

Check for static electricity. Static electricity can cause sheets of paper to stick together, especially if the environment is excessively dry. Simply remove the paper, fan it several times, replace it, and try printing again.

Ink Blots

Your printer isn't qualified to give you psychological tests, so it has no excuse for creating ink blots.

Problem: The printer is printing sporadically and the ink is all blotty.

Purge the ink cartridge. You can usually do so via your inkjet printer's software. Depending on your printer type, locate a category for printer services (likely on a tab or through the Printer menu). Look for a Purge or Clean command. After you choose such a command, your printer will produce one or two test pages. If the cartridge is still not up to par at this point, simply repeat the procedure. If the cartridge consistently acts up, it's time to find a replacement cartridge.

Problem: Ink is blotting on the paper.

Clean the ink cartridge. You may need to manually clean the cartridge. Be careful when doing this because

If your paper is jammed inside, open the printer and gently pull the paper back out to fix the problem.

inkjet cartridges can be messy; you may want to put a newspaper or paper towel on the work area before you begin. First, open the printer and remove the ink cartridge. Next, use a damp cotton ball to sponge any excess ink off the cartridge. If there is lint or debris on the print heads, remove it carefully. Allow the cartridge to dry, and then reinstall it.

Test the printer. If your printer uses software utilities to align the print heads and test and clean the cartridges, you should send a test print and then clean and align the print heads. If your printer doesn't have these utilities,

open the printer properties through the Printers folder and perform a test print. If this doesn't work, examine the cartridge for low ink and replace if necessary. If the ink level isn't too low, the cartridge itself may be defective.

Cartridges & Carriages

These printer components may look innocent, but they can cause major problems if you don't give them the attention they need.

Problem: Your ink cartridge is defective or has run out of ink.

Remove and replace. It may seem as if your ink cartridge is empty, but on occasion, even full ink cartridges can become defective while in use. If you

Ink cartridges are usually found under the front cover and can easily be snapped in and out of place.

have tried everything to print without success, it may be that the cartridge, although still containing ink, is defective. Most often, however, the cartridge has simply run out of ink. Either way, you need to remove the cartridge and replace it with a new one.

If you cannot access your cartridge when you open the printer, you will have to press a button and move the carriage to a place where you can easily extract the cartridge. Before replacing the old cartridge with a new one, clean any dust or dirt from the carrier and make sure that ink hasn't leaked into your printer. There is usually a plastic

piece of tape on the bottom of a new cartridge that protects the ink nozzles and prevents them from leaking. You should remove this tape prior to installation or the ink won't make it to the paper. Gently place the cartridge into the carriage and you'll feel it snap into place. Your print jobs will fail if the cartridge is not seated correctly, so don't use too much force. When you finish inserting the cartridge, test the system to see if the cartridge responds to the printer. You can perform an alignment and head cleaning using the software utilities that came with your printer.

Problem: The ink cartridge is clogged.

Force it out. Sometimes ink can dry up, especially if the printer hasn't been used for an extended period of time. If your printer cartridge is clogged, and you're certain there is ink left in the cartridge, you can sometimes manually force the clog out. Wrap some paper towels that have been dipped with a cleaning solution (we recommend isopropyl alcohol) around the cartridge and strongly rap it against a hard surface. The force of the impact may knock the clogged ink free from the ink nozzles, allowing your ink to flow freely again.

Problem: The printer carriage head is acting up.

Check for blockage or damage. The carriage head is the component that moves the ink cartridge on a rail across the printer. On occasion, this device can function erratically or refuse to return to its original home position. Check the printer for any signs of mechanical damage or blockage of the carriage. Remove any paper fragments, paper clips, or other debris that may cause the carriage

head to stop responding. Replace damaged components if necessary.

Check the ribbons and cables. First, power down your printer and unplug it from the electrical source. Inspect the ribbons and cables from the carriage head to the circuitry. Are the cables crimped or frayed? Are they securely attached to the carriage head?

Maybe it's a sign. Some inkjet printers move the carriage to the middle of the printer when the inkjet cartridge is low or ink is blocked. If this is the case, replace the ink cartridge and turn on your printer to see if this resolves the problem.

Problem: Printed pages are too light.

Time to prime. If the print quality has decreased (especially if you

The Ready light on the printer display panel lets you know if your document is ready to print or if there is a problem.

haven't used your printer in awhile), the cartridge may need to be primed, usually by cleaning or aligning the print head. Open the printer and remove the cartridge to see if it is empty or if the ink has evaporated. If so, replace the cartridge with a new one.

If your printer includes utility software, try aligning and cleaning the cartridge. If this doesn't resolve the problem, you may need to manually clean the cartridge. Turn off the printer, open it, and remove the ink cartridge. Gently clean your ink cartridge using a small amount of

isopropyl alcohol, reseat the cartridge, and try printing again.

It's Lost Its Mind

If the printer is generating an "Out Of Memory" error, a trip to the pharmacy isn't going to help matters, but our tips might be enough to restore your printer's brain cells.

Check connectivity. Check for a blinking light on the printer. If the light is blinking, there is communication between the PC and the printer; if it isn't, the print command isn't reaching the printer, so make sure the printer and PC are properly connected.

Limit your open applications. If you have too many applications open at one time, your PC's memory may not be able to handle the print job on top of them. Try shutting down a few applications to see if this resolves the problem. (Of course, you also can try adding more memory. This is a relatively inexpensive and simple undertaking that can resolve a lot of problems, printer-related or not.)

Watch the file size. Some printers can't handle complex files. If you're trying to print a document that includes high-resolution graphics, try printing without the images to see if this is the problem. If so, you might want to lower the resolution of the graphics (if you can). If you're printing multiple pages with images on each page, try printing a few pages at a time to reduce the load.

Check your free hard drive space. Depending on your settings, when you print a document, the file may be spooled to the printer. This spooled information is held in temporary files on the PC's hard drive. If the PC is low on drive space, the print process can't write the spooled data to the drive. In this case, you'll need to clean your hard drive. Try removing temporary files (normally, these have a .TMP extension) or cached Internet files. Removing these files alone might

free enough space to let a print job continue, but you also might consider moving other large data files to a recordable/rewriteable disc or another external storage medium.
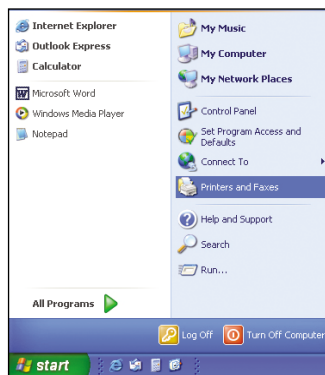
To change your printer software settings, click Start and Printers And Faxes or click Printers And Other Hardware from the Control Panel.

On A Budget

Finally, we have a few tips for those who think that their inkjet printer uses way too much ink and are spending a lot of cash just replacing its cartridges.

Use third-party suppliers. There are many third-party suppliers selling ink cartridges that are compatible with most name-brand printer models. These cartridges snap into place just like the name-brand varieties do but cost considerably less. You may wish to experiment because some suppliers' cartridges work better with specific printers than others.

Use ink refill kits. Ink refill kits work like a charm if you're careful not to spill the ink. You can usually get about three times the ink for the same dollar amount compared to buying one name-brand cartridge.

Print in Economy mode. If you print in Economy (or Draft) mode, you'll use much less ink. The quality will suffer a little, but if that isn't a concern, printing in Economy mode will save you money.

Remove high-resolution graphics. You also can save ink by removing unneeded graphics. For example, if you want to print a Web page that includes a large number of banners and other graphics, cut and paste your text into a word processor and print the text without the graphics.

Print in grayscale. If you don't need color in your printout, print your document using grayscale. You can make black the default color for all your documents by setting this preference in your printer's utility software. This will reduce your overall ink usage, and even if it increases your use of black ink, you'll find that black ink cartridges cost less than color cartridges.

Keep it well-oiled. Make sure you print on a regular basis. If you let your printer sit for extended periods of time, the ink heads can clog up and dry out. This might result in having to purchase new cartridges.

Avoid repeated cleaning cycles. Some printers clean the cartridge by shooting ink out through the print heads. This helps loosen any ink that may be clogged. The problem here is the amount of ink used each time you clean. You'll save a lot of ink if you avoid repeating cleaning cycles.

Power down the printer every time. Turn your printer off after using it to make sure the ink cartridge returns to its storage position. If the cartridge is in this position, the print heads are properly covered, preventing any ink from leaking into the printer.

Use the Print Preview function. If you get in the habit of using Print Preview in your applications (assuming it's available), you'll catch your mistakes before you actually print your documents. This will save you ink and paper because you can correct any errors before having to print a second or third time. ▌▌

BY CHRIS A. MACKINNON

Great theater deserves a great setting.

The beauty and warmth of real maple or cherry come to life in the distinctive style of new Woodbrook furniture from Sanus.
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Focus On Displays

Solve Typical Video Card & Monitor Problems

Troubleshooting video cards and monitors can be frustrating, but with a little patience, you can solve most video-related issues quickly. Be sure to check the obvious stuff first; examining cables, reseating video cards, and adjusting display settings will often save you time and a lot of unnecessary guessing. Always turn off and remove the power cord from the source when troubleshooting video cards and monitors (and properly ground yourself before checking components inside your computer case). Keep in mind that *only* trained technicians should open monitors because there are dangerous electrical components inside; even when monitors are unplugged, CRT (cathode-ray tube) capacitors retain enough voltage to be lethal.

Display Maladies

Not only are there numerous display problems, but there also are just as many reasons why monitors and video cards present distorted images, colors, and other elements on-screen.

Problem: A black border surrounds the screen, or the display is extended past the viewable edges of the monitor.

Adjust the controls. Controls for the monitor usually consist of a row of dials marked Horizontal, Vertical, etc. or a row of buttons that activate an on-screen menu. Check the horizontal and vertical alignment controls. Generally, each control has a double arrow in the center, indicating the direction of alignment. Simply adjust the controls until you are satisfied with your display. You might have to adjust more than one control to fix this problem, so be patient.

Problem: The display image is continually rolling down the screen.

Change your software settings. A monitor that cannot display a particular screen mode might cause this problem. Use the Windows Control Panel (via the Start menu) to reconfigure your software to use a compatible video mode.

Reduce the refresh rate. You also might try reducing the refresh rate. To change your monitor's refresh rate, right-click a blank area of your Desktop, select Properties, and choose the Settings tab. Click the Advanced button, choose the Monitor tab, and select the desired refresh rate. (But remember that reducing the refresh rate below 60Hz can cause a headache-inducing flicker.)

Investigate synchronicity. If both the monitor and video card are indeed compatible, there is likely a problem with synchronization. Use the monitor with a PC you know is working well. If the monitor also fails on that PC, use the second PC's monitor with the original PC. If the second PC's monitor works with the original PC, the synchronization circuits in the initial monitor have likely failed. If the monitor in question works fine on a good PC, the problem probably lies with the original video card. If all else fails, try replacing the video card.

Problem: Wavy lines on the monitor.

Try a manual installation. This is a common problem in Windows 98 with certain types of monitors. The video adapter is likely configured for the 1,600 x 1,200-pixel screen resolution, and the Automatically Detect Plug & Play Monitors checkbox is likely selected on the Monitor tab in Display Properties. You will need to manually install your monitor under Display Properties. To do so, remove the check mark from Automatically Detect Plug & Play Monitors, select the appropriate
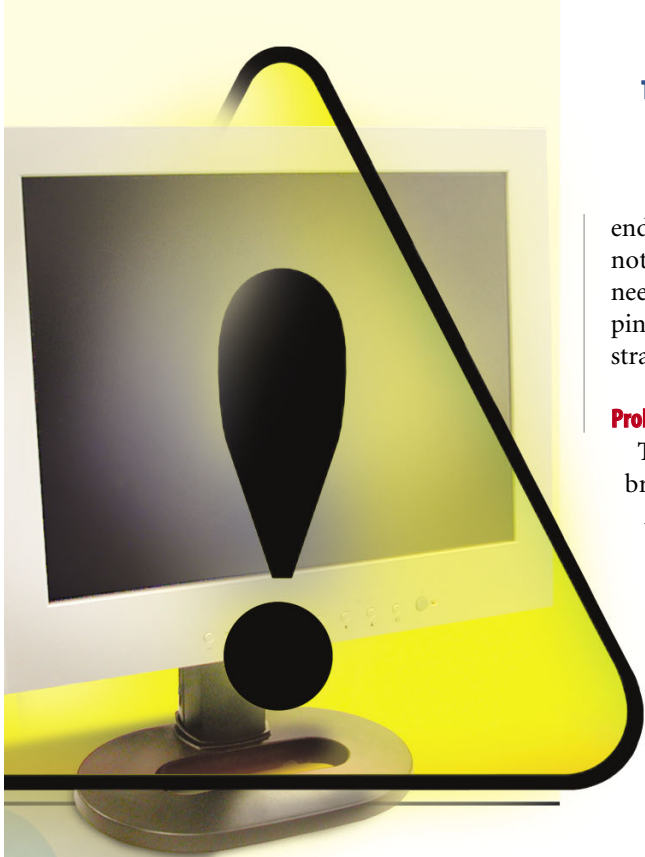
driver from the Show All Hardware list, and follow the on-screen instructions to finish the monitor installation.

Problem: The image appears distorted, with wavy lines moving up or down the screen.

Look for the culprits. Interference from another device may cause this. Check the area around the monitor and remove any devices that may be interfering. Common offenders include fans, motors, transformers, and other monitors. Placing two monitors next to each other might cause distortion on one or both.

Try another plug. Try plugging the monitor into another power outlet (preferably one that's on a completely different circuit) to see if this fixes the problem. If it does, you may have "line noise" problems. You should try isolating both the monitor and PC to their own circuit, or use a power-protection device that includes line filtering.

Problem: The image repeatedly fluctuates, appearing or disappearing.

Check connectivity. The cable is usually the culprit here. Make sure your cable is straight and not crimped anyplace. Look at the pins on both

ends of the cable to make sure they're not bent. If they are, you'll probably need to replace the cable because bent pins often break when you attempt to straighten them.

Problem: Image is too bright or dim.

Turn down the brights. Adjust the brightness control on the monitor. Adjusting the contrast control also may help. If the controls don't do the trick, the monitor itself may need an adjustment. If so, a repair shop technician may be able to tweak the controls internally and improve the brightness of the display.

Modify the lights. Try to change the room's lighting. If you darken the lights, it may compensate for a dim image. Ceiling lights can make a monitor seem dimmer than it actually is.

Take it or leave it. If the monitor is an inexpensive model, you may just have to live with it because repairs can cost more than you paid for the monitor. If the monitor is an older model and still appears dim even after adjusting the brightness, the CRT may just be fading due to wear and tear. You can't do much about this other than turn the CRT off when you're not using it. Of course, if your monitor is new, take advantage of its warranty.

Problem: The display is "snowy."

Update the driver. Visit the video card manufacturer's site to download the latest driver. The original diskette or CD-ROM that came with the card will only have the driver that was available at the time of packaging, and that driver may be out-of-date by now.

Monitor activity. It's not unusual for "snow" to appear during a change in video modes or when toggling between a graphics-intensive app and Windows. If the snow lasts for more than a few seconds, you may need to consider a new video card.

Problem: The colors on the monitor seem to be smearing or smudging.

Check the cable. Although a number of factors can cause this, the cable between the video card and the monitor should be the first item on your troubleshooting list. The cable may be allowing signals representing one color to be accidentally picked up in another color's signal wire. Try wiggling the cable around, and if the problem stops, you've found the culprit.

Take the monitor to the shop. If the cable is good, capacitors or transistors inside the monitor are likely the problem. If this is the case, it's best to have a technician look at the monitor.

Problem: The colors in the on-screen image appear to be streaking.

Reinstall the driver. Streaking usually indicates a faulty video driver. Once you determine your video card type, visit the manufacturer's site to download and install the most current driver for your card. After doing so, check your video performance again. If performance is still poor, contact the manufacturer directly and request technical support for your video card.

Try a different video card. If the problem disappears after trying a different video card, replace the card in question. The problem may be related to failing memory on that video card.

Strange Behavior

Sometimes it seems like computer components have minds of their own, and monitors and video cards are certainly no exception.

Problem: The monitor turns itself off after a period of time.

Check power and connectivity. Make sure the monitor's power indicator light is on and that the power cable didn't come loose from the monitor or the power source.

Turn off the power-saver. Windows has a power-management feature that places the monitor in a sleep mode (to save power) after a period of inactivity. You can disable this feature via the Control Panel's Power

Options or Power Management dialog box. In the appropriate dialog box, choose the Power Scheme tab and select Never from the Turn Off Monitor drop-down menu.

Problem: There's smoke and a burning smell coming from the monitor.

Check the vents first. First, unplug the monitor. Then, check the vents that displace warm air from the monitor; they can easily become blocked with dust and debris. This may cause your monitor to overheat, which may cause the dust and debris to smolder.

Repair or replace the monitor. It may be safe to continue using the monitor if the above solution solved the problem, but if the problem is more serious than some smoldering dust, you should send it in for repair or replace it altogether.

Problem: The PC seems to boot up fine, but there is no display.

Check the monitor first. Make sure you turn on the monitor and that the cable between the monitor and PC is secured tightly. If the monitor has a separate power cord (one that isn't permanently affixed to the monitor), make sure the cord is connected firmly at both ends.

Check the video card. If the monitor is working fine, it's time to power down the PC, disconnect the power source, and open the PC case. Don't forget to ground yourself before touching components inside the case. Once you locate the video card, remove it from the expansion slot. Check to see if the card is damaged. If it looks OK, reseat the card firmly back in the slot and tighten it. Replace the case cover and reconnect the power cord. Try to boot the PC again with the monitor turned on.

Swap out the card. If possible, borrow another video card and try it in your system. With a borrowed card

(and lacking the appropriate drivers), your system may boot into a generic 640 x 480 display, but that's OK; the fact that it boots and displays at all indicates that the original card is trashed and you should replace it.

Motherboard problems? This isn't likely, but it's worth considering. If your system uses **integrated video** (video built into the motherboard as opposed to residing on a separate video card), it's possible that the video circuitry on the board is shot. It's unlikely, though, because you'd almost certainly be having other motherboard-related problems, such as random reboots or lockups, or a system that refuses to boot at all.

Problem: The PC boots up and beeps, but there is no display.

Check the keyboard. This usually isn't a video problem (even though it seems to be one). When the computer beeps while booting, it is typically because the keyboard is defective or not connected properly. Turn off the PC, reconnect the keyboard to the PC, and turn on the PC again.

Look inside. If everything is fine up to this point, you should check the hardware inside the PC case. After you remove the case cover (and you are properly grounded), check to make sure that your expansion cards are properly seated. When you finish, place the cover back on the PC case and turn it back on.

Problem: There is no way to change the Desktop resolution or color depth.

Check the driver. If your display is stuck in a 16-color, 640 x 480-pixel mode, the drivers are corrupted, installed incorrectly,

or not installed at all. To locate the driver for your video card, navigate to the display settings via Windows' Control Panel. You'll probably see an entry that reads Standard PCI/VGA Adapter; this means that the driver for your specific video card hasn't been installed, and the system is running a generic default driver instead. But if you do see your specific video card type listed, you may have a corrupted driver. In either case, you'll need to download and install the latest driver from the manufacturer's site.

Problem: The refresh rate won't change when you try to adjust it.

Look at the video card driver. Check the card's make and model and visit the manufacturer's site to download the latest driver. Install it by following the manufacturer's instructions.

Repair Or Replace?

We have to offer a caveat about some of the repair recommendations: The price of CRT monitors has plummeted as LCDs (liquid-crystal displays) have gained popularity. In many cases, you may find that it's simply not worth repairing a CRT monitor because the repair may end up costing you more (often significantly more) than half the price of a replacement, in which case, you're probably better off just replacing the monitor. ▮

BY CHRIS A. MACKINNON

Be very careful when working with monitors. To avoid potentially lethal shocks, leave internal problems to a qualified repair technician.
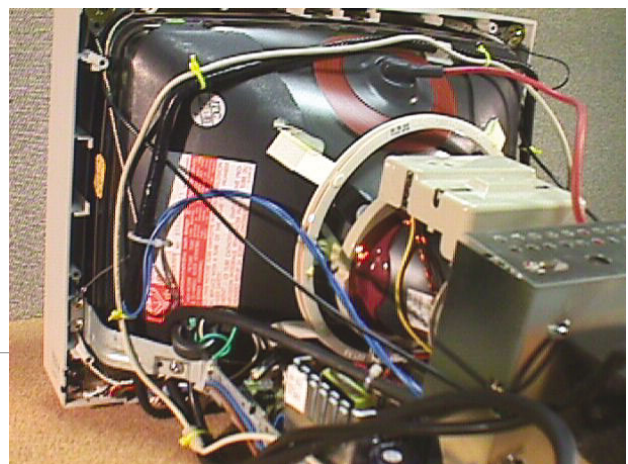
Sound Audio

Improve The Output Of Audio Cards & Speakers

Your speakers and audio card are the boulevard down which your favorite songs sashay, breeze, or blast their way into your waiting ears. Internet radio stations; email audio attachments; the thud, soar, and squeal of game sounds; the soundtrack of a DVD movie; even the ever-so-humble system beep—none of these would make it to the outside world if there wasn't an audio card to process the sound and a speaker or two (or three or four or five) to broadcast it.

On the following pages, we deal with some common (and a few not-so-common) problems that your audio card and speakers may bring your way, and we provide you with solutions for each situation.

Before you start troubleshooting (and to effectively maintain your audio card and/or speakers afterward), make sure you visit the manufacturer's site to download and install the most recent **driver** (software that controls a piece of hardware and helps it communicate with the system). New drivers fix problems that users and company engineers have discovered. Plus, updates frequently add new features, including support for additional audio peripherals. Eventually these drivers will be posted to Microsoft's Windows Update site (http://www.windowsupdate.com), and thus, become available to download automatically when Windows prompts you (if your PC is configured for this feature), but frequently, the drivers you'll find posted at Windows Update aren't the most recent ones.

Speakers

Don't assume that your audio card is to blame until you've taken a few steps to rule out your speakers as the cause of the problem. First of all, make sure your speakers are turned on and that the volume knob isn't turned all the way down. Next, make sure the speaker cable is connected firmly to the correct jack on the back of your computer.

Also, if you have an OS (operating system) older than Windows XP, you should look for the speaker icon in the System Tray on the far right side of the Taskbar because an absent icon may mean that you either don't have an audio driver or that the driver is corrupted. If there is a speaker icon, double-click it and make sure the volume sliders aren't turned all the way down or muted. (To make a missing speaker icon visible in WinXP, open the Control Panel via the Start menu, double-click Sounds And Audio Devices, and select the Place Volume Icon In The Taskbar checkbox.)

If you have an extra set of computer speakers, replace the ones in question with the extra set to make sure your speakers aren't at fault. After taking all of these steps, we have some specific problems for you to review to see if any of them match your situation.

Problem: At a high volume, you hear distortion and noise from your USB (Universal Serial Bus) speakers using Intel SpeedStep technology.

Always keep the power on. If you have an Intel Mobile Pentium III processor using Intel SpeedStep technology, you may hear popping or crackling noise when you play an audio file through your USB speakers. This may occur once almost every minute when your speakers are at a high volume. Open the Control Panel, click Performance And Maintenance, click Power Options, and choose the Power Schemes tab. Select Always On from the Power Schemes drop-down menu and click OK.

Problem: There is no sound when playing an audio CD in analog mode on USB speakers.

Go digital. On PCs with USB speakers as the preferred audio output device, you may not hear any sound when you play an audio CD in analog mode. And the master volume slider in Windows Media Player has no effect on the volume because analog CD audio cannot be output to USB speakers; USB speakers typically take digital signals only. Therefore, the fix is to use either digital output or analog speakers.

To switch to digital CD playback, launch Windows Media Player, click Options from the Tools menu, choose the Devices tab, and click Properties for the optical drive you're using for playback. In the Playback section, select the Digital checkbox. Click OK.

Problem: You have very little bass coming from your subwoofer.

Get an adjustment. Adjust the Sub or Bass control on your main satellite speaker, and then adjust the Volume control on your subwoofer. Check to make sure that all of your cables are connected correctly (and firmly).
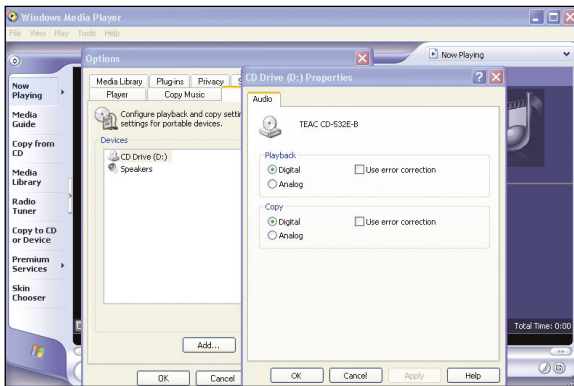
If you don't hear any sound while playing an audio CD in analog mode on USB (Universal Serial Bus) speakers, try switching to digital CD playback.

Problem: You have a loud hum coming from your subwoofer.

Have a moving experience. Unplug the power cord from the surge protector and plug it directly into a wall outlet to see if that solves the problem.

If not, move your cables and make sure they have a good connection. Finally, if you disconnect your stereo cable from the audio card and the loud hum disappears, you may need to use Windows to adjust the volume control because you may be overdriving the volume settings on your speaker system. Click the speaker icon from the System Tray and adjust the volume.

Problem: You only get two-speaker sound out of your surround-sound digital speakers.

Reduce the audio bit-depth. In Windows Media Player, click Options from the Tools menu, choose the Devices tab, select Speakers, and click the Properties button. Deselect the Use 24-Bit Audio For Audio CDs checkbox and click OK twice. Close and reopen Windows Media Player.

Audio Cards

The most common problem that users encounter with audio cards is a driver that's incompatible with the Windows version they're using. We'll cover this problem, as well as several others relating to audio cards, but there are a few things you need to do first: back up your system, temporarily disable any antivirus software, temporarily detach all devices that aren't essential (such as scanners, printers, and external drives), and detach and reattach all cables connected to your audio card.

Problem: The audio card you just bought and installed doesn't work.

Double-check the requirements. Verify that your system meets the minimum requirements for the audio card.

Opening gambit. When you're trying to locate the source of the problem, it's a good idea to install your

audio card in a PCI (Peripheral Component Interconnect) slot as far away as possible from such components as your graphics card, CPU, and hard drive(s). As we mentioned, remove all unnecessary peripherals; every device uses some resources, even if you're not actively using it. (Also, removing extraneous hardware will help you track down the source of this [or any] problem.) Finally, tidy up all cables inside your computer case because they can cause electrical interference.

(*NOTE: Before opening your computer case, don't forget to take the necessary precautions to ground yourself and prevent an electrostatic discharge that could damage internal components.*)

Driver damage. Your problem may be due to an outdated or damaged driver. To check for a device conflict or corrupt driver, follow these steps:

1. Open the Control Panel and double-click Multimedia (or Sounds And Multimedia). Or in WinXP, select the Sounds, Speech, And Audio Devices category and double-click Sounds And Audio Devices.

2. Choose the Audio tab and make sure your audio card is listed as the preferred playback device.

3. Make sure there's a check mark in the Use Only Preferred (or Default) Devices checkbox.

4. Choose the Hardware tab in the same dialog box and check the Audio Devices listing for your audio card. Because you recently installed new hardware, it's possible that your configuration has produced a device conflict somewhere along the line.

The codec may be the culprit. Your problem could be the result of a missing, damaged, or incorrect **codec** (**compressor/decompressor**; hardware or software designed to compress and decompress audio or video data for efficient recording and playback). If you're missing a codec (or if the codec is damaged), you'll probably receive an error message indicating as much. If you have the required codec, there's an outside chance that it just isn't enabled.

Windows installs a standard set of audio codecs by default, but some audio files may require specialized versions. Windows Media Player usually lets you know when you lack the proper codec for a given format, but you can verify which codecs you have by opening the Device Manager.

Right-click My Computer, click Properties, choose the Hardware tab, and click Device Manager. Double-click the Sound, Video, And Game Controllers category, double-click Audio Codecs, and click the Properties tab. Select the codec you're looking for in the Audio Compression Codecs list, click the Properties button, and make sure the Use This Audio Codec radio button is selected.

Problem: Your Turtle Beach Montego audio card performs poorly on your WinXP system.

This Turtle goes belly-up. This is a popular type of audio card found on many Dell PCs, but the Montego series of cards doesn't have the support of WinXP. Although WinXP will install "reference" drivers that offer some generic audio functionality, Turtle Beach doesn't support these drivers.

Basically, the only real solution for this problem is to purchase a newer audio card that's compatible with WinXP, such as Turtle Beach's Santa Cruz audio card. For more information, visit the manufacturer's Web site at http://www.turtlebeach.com.

Problem: There's no audio playback with your Turtle Beach Santa Cruz audio card after you upgrade to WinXP.

Santa Cruz driver wanted. Download and install the most recent driver for the Santa Cruz audio card. To do so, visit the Turtle Beach Web site or, if your Santa Cruz audio card came preinstalled in your Dell computer, contact Dell (http://www.dell.com).

Problem: There's no audio playback after you install Creative's Sound Blaster Live! audio card.

Resolve playback configurations. To get things working, you may need to change the output setting from digital to analog in WinXP's volume controls. Open the Start menu and select All Programs, Accessories, Entertainment, and Volume Control. In the Volume Control window, open the Options menu, click Advanced Controls, and then click the Advanced button from the Play Control dialog box. Deselect the Digital Output Only checkbox and click Close.

If you already de-selected the Digital Output Only checkbox before you updated the driver, turn on the digital playback, and then test the audio playback.

If you are using a retail version of the Sound Blaster audio card, you may need to download the most recent driver from the Sound Blaster Web site at http://www.soundblaster.com/drivers.

Problem: Your Creative Sound Blaster Audigy audio card causes an error.

Make Audigy the main one. After you install a Sound Blaster Audigy audio card and its software, you may receive any of the following error messages: "Ctplay2.exe has encountered a problem and needs to close. We are sorry for the inconvenience," "Eacontrol.exe has encountered a problem and needs to close. We are sorry for the inconvenience," or "Sound Blaster card needs to be installed."

This might happen if the Sound Blaster Audigy audio card isn't the default sound playback device. To fix this problem, open the Control Panel, click Sounds, Speech, And Audio Devices, and then click Sounds And Audio Devices. Choose the Audio tab, select SB Audigy Audio from the Default Device drop-down menu under Sound Playback, and click OK.

More Problems, More Tools

Although there are plenty of problems that can plague the latest breed of sophisticated audio cards and speakers, the range of trouble-shooting tools continues to grow. For example, if you have WinXP or WinMe, you can use one of its troubleshooters as a diagnostic tool to guide you through the process until you reach a solution.
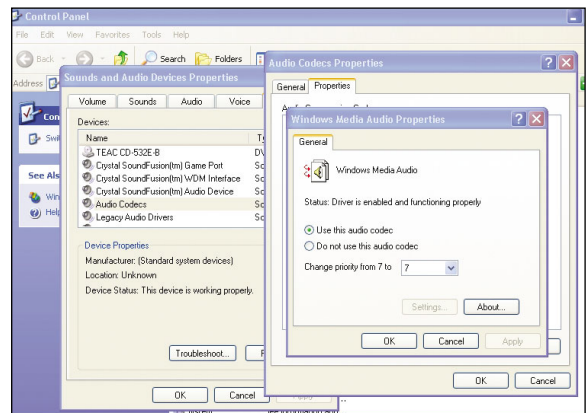
If your newly installed audio card doesn't work, the problem could be the result of a missing or damaged codec.

WinXP users can access the Sound Troubleshooter by opening the Start menu, clicking Help And Support, and choosing Fixing A Problem under Pick A Help Topic. From the left pane, users should click Games, Sound, And Video Problems. Then, from the right pane, they should click Sound Troubleshooter, and pick the option that best describes their problem.

WinMe users can access the Sound Troubleshooter by opening the Start menu, clicking Help, and typing **troubleshooter** in the Search field in the upper-right corner. Next, users should then click the Sound Troubleshooting link and select the option that best describes their system's problem. ❚❚

BY PHILIP BISHOP

Trouble-Free Surfing

Bypass The Unfriendly Waves
That Hamper Dial-Up, Cable & DSL Connections

Don't hang your head if you have a dial-up modem. With a little tweaking, you may get more performance out of that connection than you thought possible. On the other hand, if you've already delved into the world of broadband, we have some troubleshooting tips for you, too. Of course, with cable or DSL (Digital Subscriber Line), setup is relatively simple. But, as many broadband surfers will testify, getting up is the easy part . . . staying up is something else entirely.

Dial-Up Modem Hangups

Like many dial-up users, perhaps you aren't aware that there are several ways to accelerate your connection. You won't get broadband-class speeds, but you can increase your dial-up modem's performance by 10% to 20%.

Move up to V.92. Ask your ISP (Internet service provider) if it supports V.92 modems. The maximum download speed for a dial-up modem is 53Kbps, but the upload speed on standard V.90 modems is 31.2Kbps. The V.92 spec lets you upload at up to 48Kbps. This can be a substantial benefit if you're doing a lot of file uploads.

Two modems are better than one. When the world figured out how to use software to run two modems in tandem, using the data pipelines from each device to create a bigger pipeline for a faster connection, Microsoft named the technique PPP Multilink and built it into Windows 98 and future Windows versions. Multilink is enabled in Windows XP. After you install your modems, go to the Network Connections area of the Control Panel, right-click your dial-up ISP connection, and select Properties. Choose the Networking tab, and, with PPP showing in the Type Of Dial-Up Server field, click Settings. Select the Negotiate Multilink For Single Link Connections option but deselect Enable LCP Extensions. Windows will then use more than one modem on an as-needed basis. Multilink will only work if your ISP supports it, and it may charge extra for a Multilink-enabled account.

Tweak TCP/IP properties. The networking functionality built into Windows sometimes doesn't have everything set up for maximum performance or compatibility. TCP/IP (Transmission Control Protocol/Internet Protocol) is the protocol used for Internet communication, so

that's what we'll focus on optimizing. Go to Network Connections in the Control Panel, right-click your dial-up ISP's icon, and select Properties. In WinXP, click the Networking tab. You should see a list in the This Connection Uses The Following Items area. The protocol you want is Internet Protocol (TCP/IP). If you see NWLink IPX/SPX/NetBIOS Compatible Transport Protocol, highlight it, click Uninstall, and click Yes.

If you highlight Internet Protocol and click Properties, you'll see options to obtain IP and DNS (domain name server) addresses or you'll see fields in which you can enter addresses. In WinXP, this is under the General tab (it's usually under the IP Address tab in earlier Windows versions). Either way, you should obtain these addresses automatically. In older Windows versions, go to the WINS Configuration tab and select Disable WINS Resolution. Under the DNS Configuration tab, you should have Disable DNS selected, and everything under the Gateway tab should be blank.

Watch out for line noise. Audiophiles will tell you that the biggest reason for switching to digital speakers
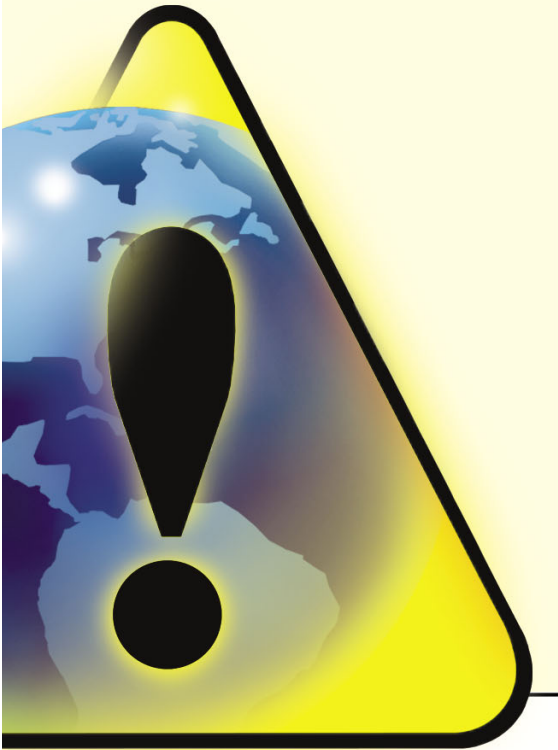
is to avoid the distortion from electromagnetic devices that creeps into analog speaker wires.

The line noise you sometimes hear in your speakers can get picked up in your phone line. If the distortion is sufficient to scramble the data packets sent between your system and ISP, the receiving PC will say, "I didn't catch that. Can you resend?" Resending packets takes a toll on throughput. The phone company usually only guarantees line quality for voice calls, not data.

The best way to minimize noise is to use the shortest cords possible. Perhaps this will mean adding in a new phone jack by your PC. Make sure you have as few electromagnetic emitters as possible near your modem and phone line, especially speakers. Try unplugging other devices plugged into that phone line. Sometimes fax machines and other equipment can create noise, even when they're not in use.

Download those drivers. We cannot overemphasize the importance of downloading the most recent drivers for your modem, as well as the latest service pack and patches for your OS (operating system). These updates enhance stability and improve performance. Besides, they're free.

Finding the right modem driver can sometimes be tricky. If you're using an integrated modem, support from your motherboard or system manufacturer should point you in the right direction.

Adjust COM port speeds. COM (communications) ports are what your modem uses to communicate. Right-click My Computer, select Properties, choose the Hardware tab, click Device Manager, and click the plus sign (+) next to Modems. Right-click your dial-up modem, select Properties, choose the Modems tab, and note which COM port the modem is using. COM 2 is the most common, followed by COM 3.

Turn off extraneous graphics and video to optimize your bandwidth for information.

Return to the Device Manager, click the plus sign next to Ports, and double-click your modem's port. Go to the Port Settings tab. The first field, Bits Per Second, should be set to 115200, which is the default for a 56Kbps modem. If it's already at this setting, bump it to 128000. Click the Advanced button to make sure the Use FIFO Buffers option is selected and the Receive and Transmit Buffer sliders are at their maximum setting.

If you're using older hardware, you may find that these faster port speeds cause disconnects or other communications errors. Knock the port speed down notch by notch until your modem's performance stabilizes.

Fix your MTU. The MTU (maximum transmission unit) is the default packet size Windows uses to communicate with a remote computer. The default MTU setting in Windows, optimized for LAN (local-area network) traffic, is 1500, but the proper MTU for Internet connections is considerably lower. Thus, Windows is forced to negotiate a setting for each modem communication, which takes time.

Many users report a doubling or tripling of their dial-up throughput by optimizing their MTU settings, but doing so entails digging into the Registry, which is dangerous ground for novices. There are dozens of programs to do this grunt work, but our recommendation is to grab the free TweakDUN utility at http://www.pattersondesigns.com/tweakdun. This program makes a lot of enhancements to settings besides the MTU, as well.

Ditch the bling. Once upon a time, there were no graphics on the Internet. Because modem speeds have increased over the years, people have felt compelled to fill this data pipeline with more graphical elements, which drags down your surfing.

Modern browsers let you turn off nearly all of these graphics. To do so in Internet Explorer, click Tools, click Internet Options, choose the Advanced tab, and in the Settings list, go to the Multimedia section. Deselect Play Animations In Web Pages, Play Sounds In Web Pages, Play Videos In Web Pages, and Show Pictures.

General Broadband Shortcomings

There are many problems that can assault broadband users. But most of these are fairly simple to address.

Is your antivirus software current? Broadband users are particularly vulnerable to attacks from viruses and similar pathogens. Broadband users are favorites of crackers because the always-on connections help pathogens transmit quickly to other systems.

Always-on connections also are favorites of crackers wanting to recruit zombie machines for mounting a DoS (denial of service) attack. In these
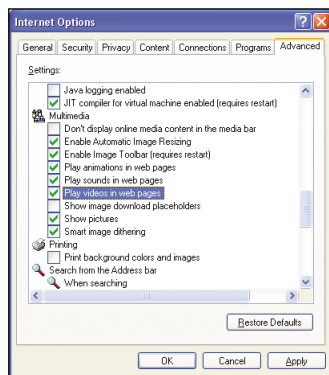
cases, your PC is implanted with a bug that, at a predetermined time or with an external signal, will execute, lock out the system user, and launch a flood of data at a target site. With hundreds or thousands of such zombies working in concert, even the world's largest sites can be shut down.

The same goes for firewalls. It doesn't take a Trojan horse to let a cracker into your PC; crackers use **port scanners**, freely available apps that scan a range of Internet addresses looking for open ports through which the cracker can enter. Once inside, the cracker can do anything from view and copy your files to log every keystroke you make to seize control of your system. Thus, the object is to seal those open ports, and this is the primary function of a firewall.

Good firewalls monitor both inbound and outbound traffic. This not only helps keep crackers out, but it also makes sure that if a cracker does gain access, he's unable to send data over your Internet connection. The more current your firewall's configuration files are, the better your security will be. Companies such as Symantec and McAfee use applets that update their firewall and antivirus software on a regular basis for maximum protection.

When in doubt, reboot. Part of a modem's job is to obtain and manage an IP address assignment from your ISP; this function usually works fine, but the modem may occasionally fail to properly update when the ISP assigns a new address or experiences some other hiccup. In any case, an unplugging and replugging of the power cord (or a 10-second flick off of the power switch, if you have one) should be sufficient to reset the modem and have it redetect data from the ISP.

Cable Crankiness

Problems with cable modems aren't common, but they do occur. Here are some tips to help you get back online.

Outside cabling concerns. Part of the cable connection from the curb to
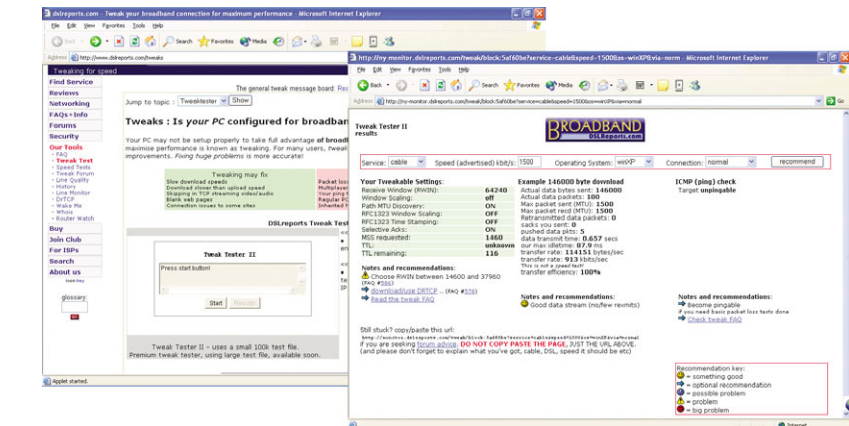
Even though it seems as though broadband connections are blazing fast, there are still ways you can goose them and get more speed. The tweak test at DSLreports.com (also known as BroadbandReports.com) can help test your connection and recommend improvements.

your modem runs along the outside of your house. This means the wire is sitting outside, getting worn down by the elements. Connection problems during poor weather are a key indicator you may have a worn cable on the verge of failing. Call your cable company and ask it to inspect it.

Look for trouble in the IP address. When you connect your cable modem and let it run through its usual setup routine, it procures an IP address from the cable provider. You can check what this address is by going to a command prompt, typing **ipconfig**, and pressing ENTER. (This is for a direct connection from your PC to the cable modem.) If you're using a switch or router, use your Web browser to access the device's configuration screens and view its IP address.

If you notice that the address is missing or appears as 0.0.0.0, odds are good that there's either a failure in your DHCP (Dynamic Host Configuration Protocol) server or your Ethernet adapter isn't operational. If the address starts with 192.168.100.xxx, this is a fallback code the DHCP server within your cable modem uses. The good news is that your equipment is working, so you can access your modem's configuration and diagnostic pages; the bad news is that the modem is not communicating with your ISP.

You also might see an address in the 169.254.xxx.xxx range. This signals

that the DHCP client in your PC failed to make proper contact with your ISP's DHCP server, and thus, it supplied an address based on an alternate built-in addressing system. One frequent cause of this is booting up your devices in the wrong order. With cable modem configurations, start with everything powered off. Turn on the cable modem and wait for it to finish its bootup and diagnostic sequence. Then turn on your switch or router (if you have one) and wait again. When the switch or router is ready, turn on your PC. By following this sequence, DHCP addresses are obtained in the proper order.

Tweaking bad, tweaking good. If you've upgraded to cable access from a dial-up modem, be warned: There is lots of software that advertises the ability to speed up your access—and they do—but the key to their success is in adjusting the MTU within the Windows Registry, which by default is optimized for LAN communications, not dial-up networking. Unless this value is changed back to its original setting, your cable access speed will be greatly impaired. If you don't know how to change the MTU setting back, a reinstallation of Windows (just an overwrite, not a reformat and clean install) will do the trick, although you're likely to lose some optimizations and personalizations.

If you know your way around the Windows Registry—we mean *really*

know your way; don't just nod your head or you could seriously corrupt your Windows installation—check out instructions on how to enable the proper settings at http://www.win guides.com/registry/display.php/280.

There are several tweaks that can help cable (and DSL) users achieve better than default performance. See http://www.dslreports.com/tweaks.

DSL Doldrums

Complaints from DSL users haven't gone unnoticed; we included troubleshooting tips for these users.

Speaking the wrong language. North American standards don't necessarily match those elsewhere in the world, and there are several communications protocols in existence, such as G.992.1, G.944.1, and ANSI T1.413. Sometimes vendors build support for multiple protocols within their equipment, but not always. This is why it's good idea to make sure your DSL modem is on the approved equipment list from your ISP. It may turn out that your modem does support your protocol mode, but because the unit is set to an "automatic" mode that defaults to the wrong protocol, you're not able to connect. If necessary, talk with your ISP and modem manufacturer to sort this out.

Revenge of the clones. We're not going to point any fingers, but we know some DSL providers haven't taken kindly to subscribers using routers; these routers let users use one connection throughout the home rather than pay for multiple accounts. There have been plenty of reports about these providers "accidentally" knocking router users offline. How do providers know who is using routers for such a purpose? Each node that accesses a provider has a unique MAC address in its network adapter.

This is where a feature called MAC cloning comes in handy. Many add-in network cards will have their MAC address on a sticker. Adapters integrated into the motherboard generally display the MAC address in the BIOS (Basic Input/Output System) setup options area. Write down the MAC address of the first PC you have on your network (it will look something like 09:00:80:E7:C2:9C). Go to your router and use its MAC-address-cloning feature (hopefully it has this) to change your secondary systems' MAC addresses to the address of your first system. By doing so, such an arrangement appears to the ISP as if all requests are coming from one device.

USB blues. Some low-end DSL modems connect to the PC via USB (Universal Serial Bus) rather than Ethernet. USB technology is less stable than Ethernet. The biggest culprit on this front is faulty driver setup. You'll

Is your DSL provider giving you grief because of your router? You can use MAC cloning to make it look like every computer on your LAN (local-area network) is using the same network adapter, and as a result, the DSL provider will only "see" one system attached to your modem.

want to periodically check for new driver and firmware updates that can improve the stability of your device; however, a perfectly good USB DSL modem can still run afoul of another USB peripheral with poorly designed drivers. In general, a system reboot is sufficient to work these glitches out, but if problems persist, check to see if you have the modem plugged into a USB hub. Hubs are infamous for supplying insufficient power to devices,

and it may be that plugging the modem into your PC will cure your ills.

Born-again connection. If you experience more than the occasional connection drop, there could be several causes. DSL connections tend not to renew as quickly as cable connections, and sometimes you have to give them a little push. Check your router options for an auto-reconnect or keep-alive feature; enabling this will force the router to to negotiate a new connection whenever the existing one is dropped.

Are you properly filtered? DSL filters are designed to segregate voice calls from the DSL signal. With an unfiltered line, these two areas can overlap, and the interference will slow or stop your DSL connection, so it's critical to use the right filters for your phone lines and make sure you have one filter on each phone jack in use. DSL filters don't actually go between the wall and the DSL modem; they belong between the wall and other devices, including phones and fax machines.

Watch for noisy neighbors. Even with filters, other devices plugged into your phone outlets can introduce noise. Try disconnecting every other device from the same line as your DSL service. Make the DSL modem the only thing plugged into that circuit and see if the trouble vanishes. If so, start plugging devices back in, one by one, to isolate your culprit.

Surf Away

There are several ways to turn your poky dial-up modem into a speed demon, so make the best of them. And as far as broadband connectivity is concerned, problems are rare, but when you're paying extra for a fast connection, you expect better performance.

Regardless of your connection type, we hope we've prepared you for most errors that might come your way. ▌▌

BY WILLIAM VAN WINKLE

Better Communications

Eliminate The Usual Obstacles To Effective Networking

Networking machines is easier these days than it once was, but frustrating problems can still creep through those cables. If machines on your small network don't seem to get along and there's no one to call "network administrator" but yourself, it's time to enter troubleshooting mode.

In the next few pages, we'll explore the basic elements of any network and focus on glitches the network software or OS (operating system) configuration may cause. Tracking down the source of a problem generally relies on a logical progression through the system, pinning down what must be wrong by excluding everything else.

Basic Networking

Step one in solving any software problem is to make sure that software really is the culprit. That means ruling out any hardware issues before diving into one configuration screen after another. We won't delve too far into hardware here, but a quick explanation could save some time down the road.

Every computer on your network has a network interface adapter, which acts as a connector linking each machine with the network. The adapter might be an add-on NIC (network interface card) or it might be built into a computer's motherboard. Also, it might be wireless or include a port that resembles a telephone jack.

Wired networks generally require you to use a CAT 5 cable, also called RJ-45 cable, which looks something like a telephone cable but is a bit bulkier and has larger connectors on each end. Each computer on the network has its own cable running from the network adapter directly to a central network hub. Wireless networks replace the cable with radio signals, but the concept is basically the same. The hub also may have a built-in router connected to a broadband modem.

At the office or at school, network administrators handle all of those computer components that you don't see. At home, you probably put much of it together and can determine whether any of these components are turned off, unplugged, or otherwise out of commission. Oftentimes, powering down components and then restarting them will work out whatever kinks they have. If this simple hardware "fix" doesn't do the trick, it's time to take a look at software issues.

Plan Ahead

Efficiently solving a software problem begins before the problem even starts. To effectively troubleshoot a balky network, you'll want to know some basic facts ahead of time. We're assuming that you run your own home or small-business network. If so, it shouldn't take long to create a simple "map" of the network showing each machine or device and the connections among them. The time to figure all of this out, however, is while the Internet connection is actually working.

The most important bit of information for TCP/IP (Transmission Control Protocol/Internet Protocol) networks is your computer's IP address. An **IP address** is something like a phone number. It is unique to your machine (at least within your own network). IP addresses are written in a format with four numbers, up to three digits each, separated by dots. For instance, it's very likely at least one computer on a

Pinging *computername* (where *computername* is the name of the computer you are pinging) [192.168.1.102] with 32 bytes of data:

Reply from 192.168.1.102: bytes=32 time <1ms TTL=150

Reply from 192.168.1.102: bytes=32 time <1ms TTL=150

Reply from 192.168.1.102: bytes=32 time <1ms TTL=150

Following this should be a readout of some other network statistics offering clues about how swiftly the signal returned. The most important bit of information in all of this is simply that your computer received a reply. The network, at least between your computer and the computer you just pinged, is operating normally.

Note that pinging the other machine also lets you determine that computer's IP address. Write that number down on your map along with the computer name. You can ping each of the computers on your network, as well as network hubs and certain other devices if you happen to know the IP addresses.

Next, try pinging a machine on the Internet. Pick a reliable server to make it an accurate test. For example, you might type **ping www.google.com** and press ENTER. Assuming you have a live Internet connection, you should see a reply.

Along with a map of your network, troubleshooting also will require that you know a few things about your network hub or router. Routers and hubs vary by manufacturer, but you should be able to find configuration instructions either in the manual that came with the equipment or on the equipment manufacturer's Web site.

Most likely, you will be able to point your browser to a particular IP address to reach the router's configuration screens. If the network is functioning properly, you probably don't want to change any of these settings. Just make a note of the settings for future reference.

small home network is known as 192.168.1.100. (Note that where a number is fewer than three digits long in an IP address, there are no leading zeros.)

The **default gateway** is the IP address of the computer or router that connects the network to the Internet. If you connect directly to your ISP (Internet service provider), it will provide this address. If you connect through a router, the address is probably the default 192.168.1.100.

Begin to assemble your network map by figuring out the IP addresses of each machine. The fastest way to do this is to run some simple programs from a command line window. To reach the command prompt in Windows 2000/XP, open the Start menu, click Run, type **cmd** in the field, and click OK. In Windows 95/98/Me, click Start, select Run, type **command** in the field, and click OK.

The command prompt window looks like the DOS screen of yore (if you happen to remember that far back). At the prompt, type **ipconfig** and press ENTER. After a brief pause, the computer returns some of the key numbers we discussed previously. Write down the IP address on your simple network map, along with the address of the default gateway, assuming you have one.

Go to the command prompt again and type **net view** and press ENTER. Windows returns a list of computers on your network, which is arranged by the name assigned to each computer in its network configuration screen (more on this later). You may not know these names if the network is using default configurations, but this is how they recognize each other.

Because we now know the addresses of the other machines on the network, we'll try to say "hi" to everyone using the PING (Packet Internet Groper) utility. **PING** is a simple network program included with Windows that sends a few test packets of data to a specified address. The recipient of the packet, assuming it is a "pingable" component, sends back an answer.

Try it by typing **ping** followed by the name of a computer on the network. Press ENTER, and you should see a result similar to this:

Trouble Strikes

Let's assume that your browser or email program suddenly refuses to work, and maybe a shared folder on another computer is no longer accessible. When anything related to the network goes haywire, the primary suspect is always going to be a loose cable or power cord (as we mentioned previously). Check the connections on your computers and other networking devices before attempting to change software settings.

Assuming the hardware appears functional, narrow down the problem to the local network or the Internet. First, try pinging your own computer to see if your network software is functioning at all. Ping 127.0.0.1, which is the standard loopback address. You should quickly receive a reply. If not, something is wrong with the TCP/IP installation on the particular machine from which you just pinged 127.0.0.1. You also should receive a prompt reply when you ping your own assigned IP address.

Next, try pinging different computers on your own local network. Ping the actual IP address first rather than the computer name; if that doesn't work, it could mean an internal hardware problem on your end or a variety of problems with the other computer. If you receive a reply to your IP address ping, try pinging the remote computer by name. If the IP address works but the name doesn't, you are likely seeing a network software failure.

If a ping request fails, the program will return one of several error messages. If you see a "Request timed out" message, it usually means the IP address is correct but it isn't sending a reply. A firewall program could be blocking your access. An "Unknown host" error message indicates that the computer name doesn't exist on the network at all, and a "Destination host unreachable" error message means the address is likely incorrect or the computer is not functioning.

Pinging also may fail to work if you are behind a firewall and attempting to contact the outside world. You may receive the "Request timed out" or "Destination host unreachable" messages even when the network is fine and you can reach the same sites via your Web browser. If you can successfully ping other machines (other than computers) on your network, as well as your router or hub, try pinging computers on the network. First, verify that
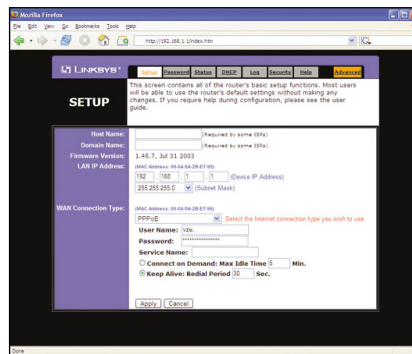
Learn how to access your router's configuration screen *before* trouble sneaks up on you.

you can ping your default gateway. If you can't, the gateway is down, which could mean a problem with your router or your ISP's system.

Next, ping the IP address for your ISP's main Web site. Sometimes you'll be able to contact your ISP's computers but nothing else on the Internet. This clearly indicates the problem is at the ISP level, and it will need to resolve the problem.

Finally, ping a selection of reliable computers via the Internet, such as http://www.google.com and http://www.microsoft.com. If these machines reply, the network is not your problem. If you're still having trouble accessing Web pages, perhaps your Web browser software is corrupted or a virus has infected your system.

Configure Software

A router or hub is likely the cause of a problem that affects an entire network. If the glitch seems limited to a

single machine, it's time to inspect the configuration of that computer's OS.

Common configuration problems include a mistyped or missing computer name, workgroup, or IP address. To see if this is your problem, you will need to take a look at your computer's network properties. In Win98/Me, right-click Network Neighborhood on the Desktop and select Properties. Choose the Identification tab. In Win2000, right-click My Computer, select Properties, and click the Network Identification tab. In WinXP, right-click My Computer, click Properties, and select the Computer Name tab.

In the Computer Name line (Full Computer Name in Win2000/XP), make sure the name of this computer is unique on the network. If not, come up with another name. It doesn't matter what the name is, so long as it isn't the same as the name of another computer. Then make sure that the Workgroup (Domain in Win2000) name is the same as all of the other computers on your network.

Now for the IP address and other network numbers. In Win98/Me, you'll reach the IP setting by right-clicking Network Neighborhood and selecting Properties. Next, select TCP/IP Ethernet Adapter and click the Properties button. A dialog box appears with three tabs: Gateway, IP Address, and DNS Configuration.

In Win2000, open the Start menu, select Settings, and click Start Menu. In WinXP, open the Start menu and click Control Panel. Double-click Network Connections (Network And Dial-up Connections in Win2000), right-click the icon for your network adapter, and choose Properties. Highlight the Internet Protocol (TCP/IP) listing and click Properties.

First click the appropriate tab for your Windows version and check our IP settings. If you are using a router for your Internet connection, you are most likely using DHCP (Dynamic Host Configuration

Protocol) to get the proper IP configuration. When your computer starts up each day, it sends a request to the router for an IP address. That means you should choose the Windows option to Obtain An IP Address Automatically.

If you aren't using DHCP, enter the correct IP address. Every computer needs a unique IP address; your ISP may assign temporary addresses to your machine when you log on, or it may provide a permanent IP address. If your IP address is static, you will need to get the correct numbers from your ISP or network administrator. You also will need to set the proper Gateway and DNS (domain name server) addresses. Again, check with your ISP.

Share Alike

To configure a folder or drive for sharing on the network, or to reconfigure one that has changed, double-click My Computer and navigate to the folder or drive. Right-click the icon and select Sharing (or Sharing And Security in WinXP).

Below the Sharing tab, select the Shared As, Share This Folder, or Share This Folder On The Network option, depending on your Windows version. If you want the folder to be known by a different or more descriptive name on the network, you can type a new name in the field near the sharing checkbox. You also can set access levels that will allow or prevent users from modifying files in the folder.

When you first set a folder to be shared in WinXP, the OS warns you that you should use the Network Setup Wizard. In fact, it disables the Share This Folder On The Network checkbox until you follow the steps in the wizard. The main point of the Network Setup Wizard is that it enables ICF (Internet Connection Firewall), a firewall Microsoft built into WinXP.

In general, a firewall makes sense if you share folders. However, Microsoft's built-in firewall often

doesn't make sense. You only need to use ICF when your computer is connected directly to the Internet, such as through a dial-up or broadband modem without an intervening router. If your computer connects to the Internet through another computer or through a router, enabling ICF will cause networking conflicts. For example, ICF will cut off File And Printer Sharing on a local network.

To enable or disable ICF in WinXP, make sure you are logged on as a user that is a member of the Administrators group. Open the
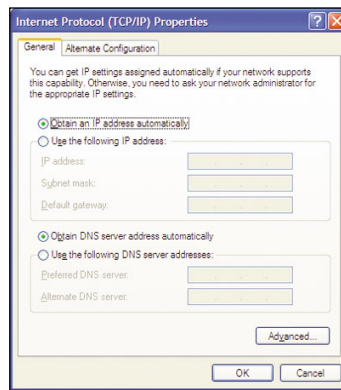
Most computers connected to routers should be set to obtain their IP (Internet Protocol) addresses automatically at startup.

Start menu, select Control Panel, and then double-click Network Connections. Right-click the network connection you want to configure and choose Properties. Under the Advanced tab, select or deselect the checkbox under the Internet Connection Firewall heading.

If you decide to use ICF, remember that it only blocks traffic from outside your system. It won't stop packets streaming out of your computer from spyware or malicious viruses already infecting your system. Some firewalls do have the capability to monitor incoming and outgoing communications; if you install such a program, disable ICF.

Router Setup

One common problem for users setting up a small network with a router is Windows' built-in ICS (Internet Connection Sharing) feature. ICS is great for networks that don't have a router. With ICS, one computer is outfitted with two network adapters: One connects to the modem; the other connects to a different computer sharing the modem with the host computer. ICS then acts as a gateway to the network. If you later switch to a router system where all of the computers plug in to the same hub, ICS is no longer necessary and interferes with the network connection.

To turn ICS off, return to the window that lists your network connections. Right-click the network adapter icon and choose Properties. Choose the Advanced tab and deselect the ICS checkbox.

Next, make sure the former ICS host machine is set up to use the router like any other machine on the network. Typically, a network router assigns IP addresses to computers as they log into the system. Most routers come with a software setup routine that makes the necessary changes to your system automatically. If not, go to the Network Connections window we described previously that lists your computer's IP address. Click the option to obtain an IP address automatically from the DHCP server. Then, click the OK buttons to save the change and reboot the system.

Stay Connected

Narrowing down your networking problem is 75% of the battle. When your computer doesn't feel like communicating with other computers on the network, start at one end of the connection and work your way through to far-away machines. Once you have a lead on where the culprit lies, you can begin to set things right. ▌

BY ALAN PHELPS

Come On, Feel The Noise
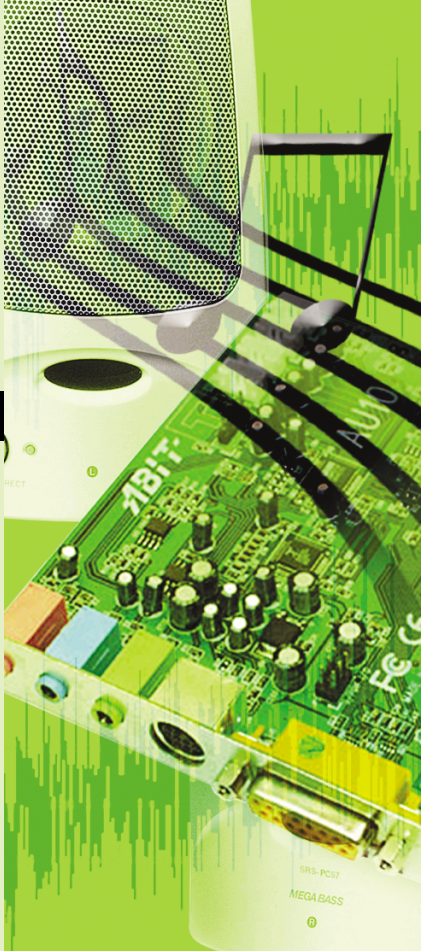
Y ou've heard all about digital music and online multimedia. But you're lucky to get a scratchy rendition of Windows' start-up chime out of your rickety sound system. Even if your situation isn't quite that extreme, your system may not be prepared for the digital audio revolution. But it's not necessarily time to buy a new computer, either. Most of the time, a simple sound card upgrade will deliver everything you need for the price of a couple CDs.

You'll need a screwdriver, your new card's installation instructions and discs, and a free hour. One word of warning: Don't rely exclusively on us.

Sound Cards 101

Sound cards serve one purpose—to convert digital signals to and from analog audio. There are three basic types of "cards." Traditional sound cards connect as expansion cards, normally via internal PCI (Peripheral Component Interconnect) slots. In addition, many motherboards come with onboard (built-in) audio: The "card" is part of the motherboard and connecting jacks are built onto the board. The third type is the external sound card, connecting via USB (Universal Serial Bus).

Generally speaking, onboard audio processing is of lower quality than expansion cards or external processors. If you're using the sound jacks built into your motherboard, you're probably not equipped for good digital sound. Likewise, an old or corrupted sound card can create weak or garbled sound and cause crashes in audio applications. External cards are easier to connect but are more expensive and take up more space. Most users upgrading from an onboard or outdated audio system will be best served with an internal PCI audio expansion card. Our instructions will assume an internal card, but subscribers can see

the Web-only sidebar, "Stepping Out," at http://www.smartcomputing.com/soundcards for some tips on adding an external model.
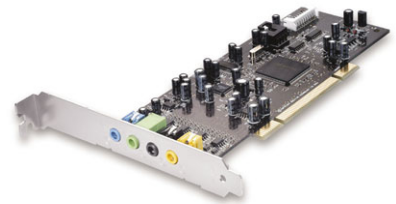
Internal sound cards, such as this SoundBlaster from Creative, offer better sound and more reliable performance than onboard and external models.

Card technology varies in output channels, input options, bit rates, and sound processor quality. Some cards deliver 5.1-channel surround sound with a variety of digital and analog inputs. Others offer a single speaker channel. Advanced cards sometimes allow for several independent and digital inputs, while others include just a microphone and line-in jack. Bit depth and sample rates offer technical indicators of processor quality. **Bit depth** measures how much data is stored for each sample (think of a slice of sound), and **sample rate** measures how often audio is sampled (think of

how many slices are gathered per second). Common specifications are 16-bit or 24-bit depth and 96KHz or 192KHz sampling: The higher the better for each measure.

Installation

One of the nice things about an audio upgrade is that sound cards are inexpensive and easy to find. Expect to pay about $30 for a basic model, though prices go up to $200 for fancier models. External cards start at about $50 and go into the stratosphere for professional-grade units. Local computer stores may have better deals than big-box electronics retailers. Shop online, as well. Both eBay (http://www.ebay.com) and Price Watch (http://www.pricewatch.com) are great tools for finding the best bargains once you know the models you're looking for.

With your new card in hand, back up all your data and gather materials. You'll need a screwdriver, your new card's installation instructions and discs, and a free hour. One word of warning: Don't rely exclusively on us. Every manufacturer and every model differs slightly, so read your card's instructions and follow the manufacturer's directions anywhere they diverge from ours.

Unplug your power supply, remove all other PC connections, and remove the case cover. Check your previous sound card (look at where your speakers connected). If you were using onboard audio, you don't need to remove any hardware. If you were connecting to an existing sound card, unscrew its tab and gently remove the card, rocking it back and forth out of its slot.

Next, select an open PCI slot and insert the new card, applying gentle pressure and angling the card into the slot. Rock the card forward and backward softly to make sure it's fully seated. You should never have to force a card in place. If you're having trouble, remove the card entirely and try again. Screw down the tab of the new card to

hold it in place and connect your speakers and, if present, your microphone and line-in device. Next, plug in your keyboard, mouse, and monitor. Don't worry about the rest of your devices yet. Reconnect the power supply and boot up.
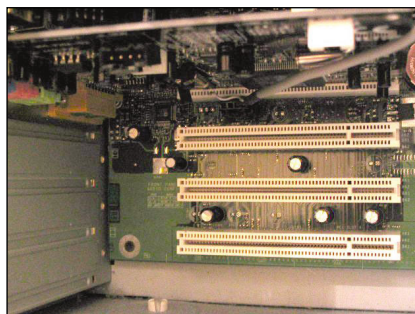
Modern internal sound cards connect to PCI (Peripheral Component Interconnect) expansion slots.

Setup

When Windows launches, it should detect your new device and prompt you to insert a driver disc. Many sound cards actually install several virtual devices, so your system may detect several new pieces of hardware. After installing drivers for each, test the sound settings from the Control Panel's Sounds And Audio Devices option. Under the Audio tab, make sure your new sound card is listed for both Playback and Recording. Under the Sounds tab, select a sound from the drop-down menu at the bottom of the
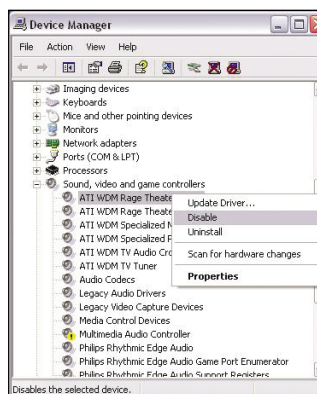
Disable old audio devices from the Device Manager if you're experiencing hardware conflicts.

dialog box and click the Play Sound icon to the right. You can also test with music or other audio applications.

If your new sound card isn't working, or doesn't show up in the Sounds And Audio Devices dialog box, you may have a conflict with your previous audio hardware. In that case, uninstall any software from your previous card (use the Add Or Remove Programs option in the Control Panel). Next, select System from the Control Panel, click the Hardware tab, and open the Device Manager. Expand the Sound, Video, And Game Controllers category. Right-click each item related to your old audio adapter (look for the manufacturer's name) and choose Disable. Finally, if your audio still isn't working, you may need to disable an onboard audio adapter from the BIOS (Basic Input/Output System) setup utility. Restart the computer and hold down DELETE, F2, or F12 as it's booting back up. Different systems have different BIOS access—check your PC's documentation if you aren't sure. Navigate the on-screen menu to find
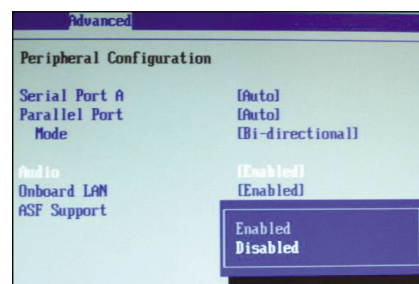
You may need to disable onboard audio from the system BIOS (Basic Input/Output System) utility.

the option for Audio or Sound (again, each system is a little different), disable the option, save, and exit.

Once your sound is working, shut down the system, close the case, and reconnect all your other devices. No matter how simple or complicated your card, you're now set to take full advantage of whatever speaker setup, audio software, and other utilities you want to enrich your digital sound experience. ▌

BY GREGORY ANDERSON

Browsers

Manage Downloads In Firefox 1.0

For new users, downloading files from the Internet can be a bit frustrating at times. You can eliminate some of the guesswork with the Firefox Download Manager. Download Manager may not seem all that exciting; it's primarily just a list of the files you've downloaded. Having that information all in one place, however, is something you'll quickly learn to love.

Make A List

To display the Downloads dialog box at any time, press CTRL-J. Alternatively, click Downloads from the Tools menu. Download Manager also appears automatically when you start to download a file. Click a download link, and Firefox first displays a dialog box asking if you want to open the file or save it to a disk. That dialog box switches to the actual Download Manager once you click OK, and the download begins. While a download is in progress, you can keep track of how much time remains by watching the progress bar. You also can cancel a download at any time by clicking the Cancel link next to the file name.

Firefox's Download Manager lets you track, find, and even pause downloads.

When a download is complete, an Open link appears on the right side of the dialog box. There's no need to hunt for the file; just click Open to launch it from wherever it is. Or click the icon at the bottom of the Downloads dialog box (next to All Files Downloaded To) to open the folder where you'll find the downloaded file.

The other command in the Downloads dialog box is Pause. Let's assume that you have a large, bandwidth-intensive download that's only about halfway finished when you want to watch some streaming video from a news site. There's no need to wait until that big download finishes to switch resources to another task; simply click Pause. The Download Manager will stop the download but keep track of the spot where you are at so that when you are ready to begin downloading again, you can just click Resume.

Clean Sweep

After awhile, your Download Manager can start to become cluttered with ancient files you downloaded long ago. Sometimes, that's a good thing. Forget where a particular downloaded file ended up? Just scroll through the Download Manager entries, find the file, and click Open. Along the way, you might notice a download that you never finished for some reason. If that's the case, you can simply click the Retry link to see if the file is still available online.

If you know you don't need a particular downloaded file link, click its Remove link to take it off the list. You might want to do that for privacy reasons or just to make the Download Manager more organized. To delete all of the entries at once, click Clean Up. Don't worry; the downloaded files themselves aren't erased—only their shortcuts in the Download Manager.

Additional Settings

Download Manager is easy to control once you've seen it in action, but there are a few additional settings you can experiment with.

From the main Firefox window, click Options from the Tools menu and click the Downloads category on the left side of the Options dialog box. At the top, you can designate where Firefox saves downloaded files by default. (This is the same icon that appears at the bottom of the Downloads dialog box.) Click the drop-down menu to choose Desktop, My Downloads, or another folder that you specify.

In the Download Manager section, two checkboxes control exactly when you see the download tool. The first checkbox tells Firefox to automatically open Download Manager whenever you begin to download a file. If you don't select this checkbox, you'll need to manually open Download Manager (by clicking Downloads from the Tools menu) whenever you want to use it.

The second checkbox tells Firefox to close the Download Manager after it successfully saves files to your computer. Automatically closing Download Manager keeps the extra dialog box from cluttering your Desktop, but you won't be able to use Download Manager to easily retrieve files unless you reopen it on your own.

Downloading was never so easy, and all it took was a simple list. ▐▌
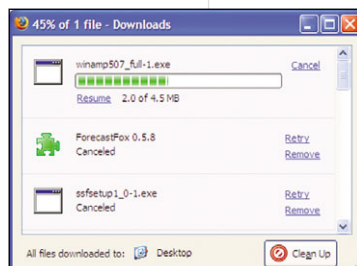
BY ALAN PHELPS

"Strapped my Camcorder to the truck and got caught up in a cat chase." John, 23, Capetown.

Film things in the smallest places with the new Philips GoGear Digital Camcorder. Small enough to wear – big enough to shoot a 25-minute movie.

Philips GoGear Digital Camcorder

* 128 MB = 25-minute movie
* 200 x 2.0 Mpixel pictures
* USB * MP3

Online

Setting Up A My Yahoo! Page

My Yahoo!, a popular home page choice, is an ideal launching pad for Internet exploration. With customizable content and blog support, the redesigned My Yahoo! page can bring together most of your favorite online news and information. If you've never tried My Yahoo!, now is a good time to check it out.

Sign Up

Start by pointing your browser to http://my.yahoo.com. A generic My Yahoo! page appears with a few news and related modules already loaded. Look for the Sign In link at the top of the page and click the small Sign Up link nearby. If you already have a Yahoo! Mail address, you can use that as your My Yahoo! login. Otherwise, create a new Yahoo! login by providing the requested information. There's no need to use your *real* first and last name if you don't want to, but you'll need to use an actual email address because Yahoo! will send a verification email before activating your account. When you're ready, click Continue To Yahoo! and click Get Started.

The next window shows you the main categories of information you can use to populate your My Yahoo! page. Select (or deselect) the checkboxes to pick the categories you want. When you finish, click Create My Page, and you should see the My Yahoo! window. A large yellow rectangle at the top of the page describes some of the ways to customize your page. My Yahoo! basically combines different modules you can add, delete, or edit. By default, the page is divided into one large column on the left and a small column on the right. If you know that you're not going to be interested in some of the default modules, delete them by clicking the small X in the upper-right corner of each unwanted box. The modules will fade away, never to return (unless you choose to bring them back).

Add Content

Rebuild a page by clicking Add Content (a tiny link in the upper-left portion of the page). On the next page, you'll see two ways to add modules: First, you can enter keywords to search for relevant content; second, you can browse different topics by clicking links in the left column. Inside the categories, you'll find links to newspapers, Yahoo! content, and ready-made modules. Click the appropriate Add button(s) to include one (or more). If you're not sure you'll like something, go ahead and click Add because you can always delete it later.

Once you've added a few components, click the yellow Finished button. The modules you picked now appear on your page, but they're probably at the bottom. To fix that, click the Change Layout link. Yahoo! presents the content of your page in two lists: one for the wide, main column and the other for the smaller side column. Click a module name in one of the lists and then click the Up and Down arrows immediately to the right to move the module above or below other modules.

In addition, you can scroll down to change other layout options. Most significant is the two column/three column selector. If you have a large-sized screen, displaying three columns on your My Yahoo! page will give you more room to add modules. You also can choose whether the Yahoo! Search field should appear at the top or the bottom of the page. Again, click the yellow Finished button when you're finished making your changes.

Edit Modules

Back on your My Yahoo! page, pick a module and click the Edit button. A small menu of commands appears; among them are arrows for quickly moving modules up or down on-screen. The top command, Edit Content, lets you fine-tune the selected box. For example, choose Edit in one of the many news headline modules to open the Display Options window. Here, you can pick how many headlines you want in view at any particular time. From the drop-down menu on the second line, you can pick whether only the headline should show or whether the headline should be accompanied by a summary of the article. Note the checkbox at the bottom of this page that directs My Yahoo! to apply these same settings to all headline modules.

By now, your My Yahoo! page is really becoming something that reflects your interests. Take some time to explore the other content options, too. If you tweak My Yahoo! enough, it will soon become your one-stop, must-see page. **II**

My Yahoo!'s redesigned, customizable news and information page makes it a great starting point for anywhere you go on the Internet.

BY ALAN PHELPS

Microsoft Excel 2002

Formatting Tables

Spreadsheet

Intermediate

2002 for
Win9x/NT
4.0/2000/XP

Y ou don't need a lot of spreadsheet savvy to break down the elements in Excel's feature for applying predefined looks to tables of data. Each of the 17 AutoFormatting designs is nothing more than a compilation of formatting steps you could apply yourself in the form of things such as font selections and column widths. There's no mysterious programming, but when you're trying to cook up a good-looking table and don't want to do it from scratch, the AutoFormats feature is pretty handy.

Apply AutoFormats

Before you start formatting, make sure you've properly arranged your table's data. For a basic setup, enter information in horizontal rows for each category, such as entering the sales for each salesperson in cells extending to the right of the salesperson's name. To add all of one person's sales, drag across the cells showing her results and include one empty cell to the right in your highlighted block. Click the AutoSum button, which looks like the Greek letter sigma, on the Standard toolbar. This automatically creates a formula that adds up the highlighted cells
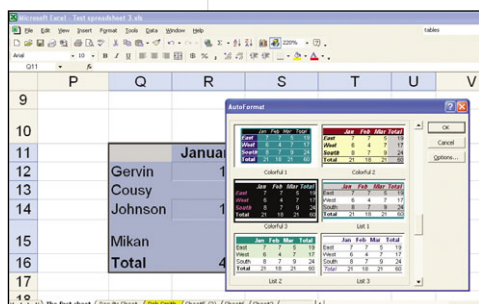
With Excel's AutoFormat function, you can instantly apply 17 looks to tables of data.

(and don't forget that clicking the Down arrow beside the button lets you use the feature to average values and find minimum and maximum values, too). To create vertical summaries, highlight the cells in the January column and apply the Auto-Sum function to the cell at the end of the column.

Once your numbers are in place, click a cell in the table and choose Format and AutoFormat. You may think you need to select all the cells in a table before you get ready to format, but Excel figures out the parameters of the table when you place the cursor in any of its cells or even in a cell bordering the table. If you choose AutoFormat while the cursor is in a cell that won't let Excel figure out the table, you'll get a warning message.

After you select AutoFormat, you'll see a dialog box with thumbnail images of all the available table formats. The preview images show you what you'll get from each choice in terms of bold and italic

fonts, thick rules between table sections, and shaded cells. Most are various combinations of highlighted column headings and other key components, but Excel's also smart enough to pay attention to the formulas you're using in your table.

When you find a format you like, click the OK button to apply it to the data in your spreadsheet or just double-click the thumbnail image to apply it and close the dialog box. If you change your mind about which AutoFormat you like, you can always apply a different one using the same technique. If you decide your table was better off before you asked for Excel's AutoFormatting help, click Edit and Undo AutoFormat. When you're too many steps away from the original AutoFormatting for Undo to be any help, just choose Format and AutoFormat and select the None thumbnail at the bottom of the dialog box.

Pick & Choose

AutoFormats are here to help, not take over your spreadsheets. Even after applying an Auto-Format, you can tweak the formatting of cells. Just click the appropriate cells and adjust the formatting as you normally would using toolbar buttons and the Format and Cells command.

Sometimes you'll have a few elements in a table adjusted as you like them but would still like to apply the overall look one of the Auto-Formats provides. Excel handles these situations with the Options button in the AutoFormat dialog box. Let's say you've found the perfect font for the salespeople's names and the monthly labels in your table, but you like the rules and shading in the Classic 2 AutoFormat. Choose Format and AutoFormat and then click Options. New boxes pop up at the bottom of the dialog box; click the one beside Font to remove the check mark. Then double-click Classic 2 to apply it but leave your original font selections intact.

You'll appreciate this Options feature if you've struggled with the formatting in some other Microsoft Office programs, such as Microsoft Word's Bullets & Numbering feature, which seems incapable of respecting your wishes once it steps in to add bullets. Fortunately, Excel's AutoFormat tool remains more automatic than autocratic. ∎

BY TREVOR MEERS

Microsoft PowerPoint 2002

Flowcharts

A mong the strengths of presentation programs such as PowerPoint are all the ready-made elements that let you create professional-quality graphics with virtually no artistic skill. Some of the handiest of these prefab visual elements are AutoShapes. This collection helps anyone drop in perfectly shaped circles, rectangles, arrows, cubes, thought bubbles, and more in a couple of seconds. It's all a matter of dragging a box the size of the item you want and releasing the mouse button.

AutoShapes pack the functionality to handle more specialized situations, such as when you need a flowchart. Software programmers, or those who sit through a lot of their presentations, are familiar with these charts. Flowcharts show the process software takes in handling data, breaking complex operations down to a very methodical series of yes/no questions. While flowcharts are most popular with the pocket-protector set, anyone who must explain systems can use flowcharts to illustrate how things work.

The shapes in flowcharts have traditional meanings, such as diamonds indicating decision points and rectangles denoting actions. If you want to follow flowchart conventions, jump on the Web and search for a guide to flowchart symbols. You can, however, probably get away with using shapes as you like if you're consistent.

Acme Corp.'s Lunch Process

When you're called on to explain a complex process, try breaking it down into simple steps with a flowchart made of PowerPoint AutoShapes.

Building The Chart

On the Drawing toolbar, click AutoShapes and then choose Flowchart. Choose the shape you wish to add and move to the slide window. When you start dragging the mouse while holding the button down, a ghost of the shape appears on the screen. Drag the shape to the size you want and release the mouse button.

When you're ready to connect the shapes, click AutoShapes and Connectors. You can choose from a variety of lines with single and double arrowheads and lines that are straight, curvy, and elbow-shaped. Add the connector to your diagram by moving the pointer onto the slide window. It turns into a box that looks like a camera's viewfinder. Note that you can't anchor these connectors just anywhere. When you point to a shape, PowerPoint highlights the nearby anchor points as

small circles. Move your viewfinder to the anchor point you want to use and click the mouse button.

With one end of your connector stuck to a shape, you need to anchor the other end. Move your viewfinder around the slide window to the designated anchor point you want to use. When you click one, PowerPoint completes the connector line between the two points. You can move connectors to other objects by clicking one end of the line and dragging it to an anchor point on another object.

Whenever you decide to rearrange parts of a chart, click a shape and drag it where you'd like. Anchored connectors will follow the shape around and retain their original shape.

Change The Look

Once you have the basic shapes of your flowchart in place, there are plenty of tricks you can use to make it more attractive and understandable.

To add text to shapes, right-click the shape and choose Add Text from the pop-up menu. A text box opens, waiting for you to type. To format text, highlight it and use the boxes on the Formatting toolbar at the top of the screen to change the font, size, color, and more. Note that you can't add text to connector lines; you must add a text box alongside the line if you want to label it. Choose Insert and Text Box to add one. Turn the box to align with a slanted line by using the rotation handle that appears above a text box when you select it.

Customize a shape's colors by clicking it and choosing Fill Color on the Drawing toolbar. Apply one of the colors you see or click More Fill Colors for a palette of hues and the chance to mix your own color. If a patterned shape is more your thing, click Fill Effects and choose to add a pattern or texture or fill the shape with a photo.

Change the color of a connector line by clicking it and using the Line Color button on the Drawing toolbar. Make lines thicker, dotted, or otherwise more interesting by clicking the Line Style button on the Drawing toolbar.

Don't forget that you can format multiple shapes or lines at once by clicking several of them while you hold down the SHIFT key. Changes you then make will apply to all the selected items. ▊
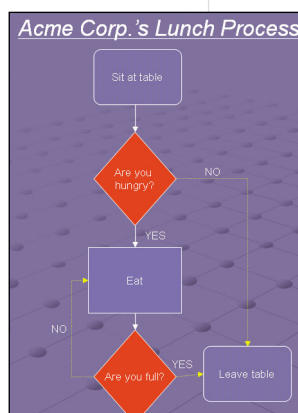
BY TREVOR MEERS

Jasc Paint Shop Pro 8
Personalized Rollover Web Buttons

There's an old saying that states "the devil is in the details," but what the saying leaves out is that that's where the fun often is, too. For instance, consider designing Web pages. Sure, anyone can rely on standard navigation buttons in Microsoft FrontPage or any other Web site design program, but it's much cooler to create your own buttons. So, in this month's Quick Study, we cover how to design personalized Web buttons.
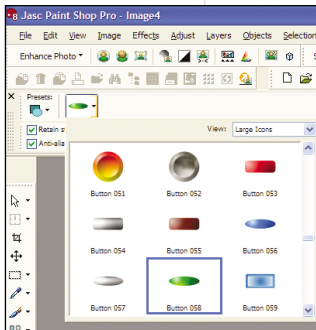
Use any of Paint Shop Pro's dozens of button templates to create personalized Web site buttons.

The Basic Button

We'll start by creating a basic button in Paint Shop Pro and then adding text and other effects to it. Open Paint Shop Pro, go to the File menu, and select New. In the New Image dialog box, change the image width and height values to 200 pixels and make sure the Transparent checkbox has a check mark. Click OK. Now that your canvas is ready, choose the button's basic shape. Click the Preset Shape Tool in the Tools toolbar. (*NOTE: Many of the instructions in this article require you to use various toolbars and palettes. If instructed to use a toolbar or palette you can't locate, go to the View menu, choose Toolbars or Palettes, and select or make sure the desired toolbar or palette is open.*)

In the Tool Options palette, click the Shape List drop-down menu and select Large Icons from the View drop-down menu. Scroll through the list until you find a button you like—we're partial to Button 58, but you can choose any icon, even nonbuttons—and click to select it. The Retain Style, Anti-Alias, and Create As Vector checkboxes should also be selected. Then, place the pointer in the Image box and click and drag your mouse until the button is the size you want. When you release the mouse button, the button you chose appears in the Image box.
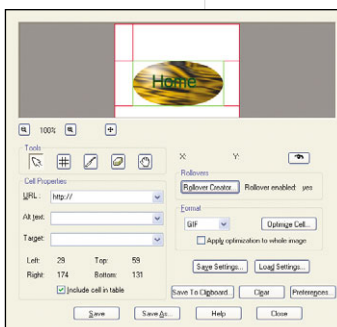
The Image Slicer tool helps you build unique rollover buttons.

Color & Text

OK, we've covered the basics, but you probably aren't having much fun yet. Well, here's your chance: To change the button color, go to the Layer palette, click the plus sign (+) next to Vector 1, and

click the plus sign next to the button. Oftentimes, you'll see an object underneath the Button listing labeled Color. (In some cases, you won't be able to change a button's color, so don't worry if this option doesn't exist, but you probably can change other features. For instance, Button 58 doesn't offer a color option, but we were able to use the following steps to give it a Liquid Gold fill pattern.)

Double-click Color (or another option). In the Vector Property dialog box, click the Fill box to open the Materials palette, click the circle to choose a new color (hot pink, anyone?) and click OK. Click OK again. Now you can add text to your button. In the Layer palette, click the New Vector Layer icon and type **Text** in the Name field. Click OK. Choose the Text Tool from the Tools toolbar, change options including Font and Size in the Tool Options palette if you wish, and click inside the button to open the Text Entry dialog box. Type the desired text (such as Home, About Us, etc.) and click Apply. If the text doesn't appear exactly where you want it, click the circle in the middle of the bounding box and drag it to the correct location.

Add Image Rollovers

To create an **image rollover** (a button that changes when a site visitor hovers her pointer over it), select Export and Image Slicer from the File menu. In the Image Slicer dialog box, select the middle, or Slicer, tool. Create a box around the button's edges by clicking and dragging vertically to create vertical lines and clicking and dragging horizontally to create horizontal lines. This creates several cells in your image. Select the Pan tool (the one farthest to the left) and click the cell containing the button. Click the Rollover Creator button.

In the next dialog box, choose which action causes a rollover. We selected the Mouse Over checkbox and clicked the Open icon (depicts a small file folder with an arrow). Browse your hard drive for a rollover image, click Open, and click OK to return to the Image Slicer dialog box. To see how it looks, click Preview In Browser (the small icon depicting an eye) to view your creation. Click Save to close the Image Slicer dialog box and use your site design program to publish the buttons where the rest of the world can see them. ▐▌

<div align="right">

BY HEIDI V. ANDERSON

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Roxio PhotoSuite 5

Fix Photos By Using Cloning
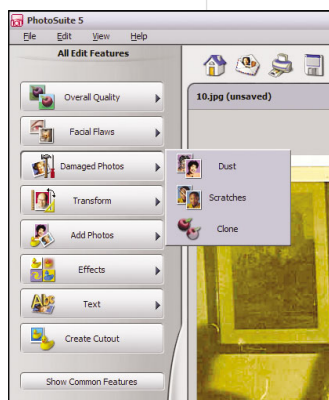
You can repair damaged photos with the help of PhotoSuite's Clone tool.

Customize PhotoSuite's brush settings to better remove water spots from a treasured family photo.

One of the most useful features of any digital imaging program is its ability to quickly repair photos. That's where the Clone tool comes in handy. This tool lets you copy one portion of a picture and superimpose it elsewhere in the picture, which helps repair damaged areas in a photo. The Clone tool is especially useful when working with older, scanned photographs, so we'll explain how to use it to repair water damage in an old family portrait.

Get To Work

Open a photo in the Work area via the Edit command on the Home Page of the PhotoSuite software. With the All Edit Features guide panel open, click the Damaged Photos button and select Clone. As you move the pointer over the photo, you'll notice it has become a circle with crosshairs in the center. Your first inclination might be to place the pointer, which PhotoSuite refers to as the Source Brush, over the damaged area of the photo, just as you would with many other PhotoSuite restoration tools. But in this case, you initially should place the brush over the "clean" area of the photo (the area you want to copy). Click once, and PhotoSuite places the Source Brush on the Start point.

As soon as you do this, a second brush, the Destination Brush, appears. Move the Destination Brush to the area you want to repair and click. The area underneath the Source Brush is copied onto the area underneath the Destination Brush. You can click and drag the mouse to move the Destination Brush in such a way that it repairs a tiny area or an entire section. However, it's important to keep in mind that the Source Brush also is moving while you drag the mouse, so the area underneath the Source Brush is constantly changing. In other words, this isn't simply copying and pasting; instead, it's real-time cloning, where the area being cloned changes as you move the mouse over the area being repaired. This won't undo any changes you've made, though. If you make a mistake, click the Undo Last Stroke button in the guide panel. You can click this button as many times as you wish to undo the last one, two, or more changes.

Repeat the cloning process as often as you'd like by clicking Reset Start Point in the Clone guide panel and placing the Source Brush on another area of the photograph. In our example, where the water damage affected multiple areas with multiple color tones, we used the tool at least 20 times.

With these types of projects, it's seldom a case where one size fits all, and with the Clone tool, you don't have to settle for such a limitation. Via the guide panel, you can change brush settings so they better fit your project. The most important characteristic, in our opinion, is brush size, which uses a scale from 1 to 100 (by default, it's set to 30). To decrease the size, drag the Size slider to the left; to increase it, drag the slider to the right.

You also can adjust how much of an effect the brush has. The Transparency slider controls how weak or strong the effect appears, on a scale from 0 to 100. By default, its value is set to 0, which means the area you're copying over will not show through the cloned pixels. If you'd like to see more of the underlying area, move the slider to the right.

The third and final adjustable brush characteristic is Edge Fading. If you want a stark contrast between where the Source area meets the Destination area along its edges, move the slider to the left. If you want more gradual fading, move the slider to the right.

Cloning For Better Results

The theory behind the Clone tool is simple: It helps you copy pixels from one area of a photo to another. In practice, however, it takes some trial and error to figure out which cloning areas best match the target areas and to learn how to configure the brush characteristics so they work best for a particular area. But with a little perseverance, you can end up with a photo that's as pristine as it was the day it was taken. ▐

BY HEIDI V. ANDERSON

Next month, we will be upgrading our Quick Study on PhotoSuite 5 to PhotoSuite 7 Platinum. Roxio released version 7 Platinum a year ago, and the company went directly from version 5 to version 7.

Quick Tips

Secrets For Succeeding In Common Tasks

BY STEPHEN J. BIGELOW

Outlook

Question: Many of the emails I receive carry prompts for return receipts, but it's a hassle to send one each time Outlook asks.

Answer: You can easily tell Outlook to automatically send replies. With Outlook 2000 running, click Tools and Options, select the Preferences tab, click the E-mail Options button, and then click the Tracking Options button. At the bottom of the dialog box, you'll see Use This Option To Decide How To Respond To Requests For Read Receipts. By default, the Ask Me Before Sending A Response option is selected. Just select the Always Send A Response option instead and click OK to save your changes. Now Outlook should automatically send return receipts for you.

Image Files

Question: I've got loads of images spread across lots of folders, so it's hard to find the picture that I need. Isn't there a way so see thumbnails of my files instead of just file lists?

Answer: There are numerous ways to view the contents of your file folders. For example, Windows XP allows for Thumbnails, Tiles, Icons, List, and Details views. The Icons view is often selected by default—it shows representations of file types, but not the content. Open the folder you're interested in, click the Views icon in the toolbar (or click View in the horizontal menu), and select Thumbnails. Images in the folder should now appear, though other files (such as documents or executables) will remain as large icons. Try a few views to get the feel for each style. The view selection is not global, so you will need to change the view for each folder of interest. Also remember that folders with large numbers of images may take some time to generate each thumbnail—this option may bog down slow PCs.

Microsoft Word

Question: I type lots of notes, but Word always creates hyperlinks when I type URLs (uniform resource locators). How can I stop Word from creating hyperlinks?

Answer: Microsoft Word offers many features that automatically correct common errors. Unfortunately, auto-corrections can become a real nuisance when you actually want text to appear a certain way. With Word 2000 running, click Tools and AutoCorrect and select the Auto-Format tab. Uncheck the Internet And Network Paths With Hyperlinks box in the Replace area and click OK. Now Word should stop turning your URLs and other network path notations into hyperlinks. Remember that once you turn this feature off, you'll need to manually insert any hyperlinks, but it's a simple matter to turn the feature back.
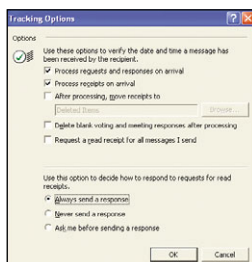
Outlook
Save time by allowing Outlook to reply to receipt requests automatically.
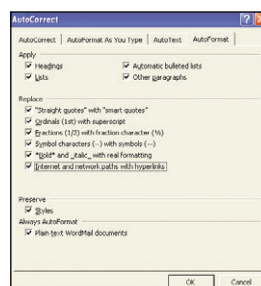
Microsoft Word
Disable automatic replacement to stop Word from automatically turning URLs (uniform resource locators) into hyperlinks.
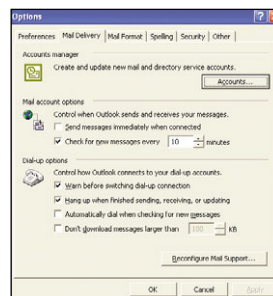
Email
Reduce email download time for slow dial-up connections by restricting the maximum size of Outlook messages you wish to download.

Monitors

Question: Why does my monitor behave erratically when I select certain resolutions or refresh rates?

Answer: It's all a matter of timing. Each resolution or refresh rate setting uses unique frequencies to time the electron beams across your CRT (cathode-ray tube). However, just because your graphics card can handle a slew of resolutions and refresh rates, there's no guarantee that your monitor can match every one of those selections. When you select a resolution or refresh rate that isn't compatible with the monitor, the image may blank out or appear heavily distorted. This is a monitor problem, not a graphics card or application problem. The Windows Desktop will normally revert back to its original settings if you don't approve the new selection in 15 seconds, so you often don't need to do anything to correct the distorted image. Otherwise, just start Windows in the Safe Mode (usually by pressing F8 repeatedly immediately after booting) and reset the original settings through the Display Properties dialog box (right-click the Desktop, select Properties, and click the Settings tab). If you need to use specific resolutions or refresh rates that are not compatible with your current monitor, you should consider a new monitor.

Please note that running the monitor in an incompatible mode for extended periods can damage the monitor.

Music Downloads

Question: I use Real Rhapsody to download legal music, but my player keeps skipping over one of my favorite songs. Do you know why?

Answer: Legal music players such as Rhapsody download song files to your PC, but rely on an Internet connection to check each song before it's allowed to play. Chances are that your provider's legal rights to that particular song have changed, and while it is still on your PC and in your play list, the player is no longer authorized to play that particular tune. The player will simply skip it. There's an easy way to check. Delete the tune from your playlist and relocate it for download. If the tune is grayed out or no longer listed, you know it's not available. This may be a temporary issue, and the song may become available again in the future. In the meantime, however, many popular tunes often have several versions (or remixes), so you might find a different version that you can play instead.

Email

Question: I'm often stuck using a dial-up connection to check my email on the road, but my messages are sometimes so large that downloading them takes forever. Is there anything that I can do to make this more efficient?

Answer: You may be able to shave some time from large downloads by tweaking your mail delivery options. For example, Outlook 2000 lets you set the maximum download size for your mail. With Outlook running, click Tools and Options and select the Mail Delivery tab. In the Dial-Up Options area, select the Don't Download Messages Larger Than box and set a maximum size for the messages that you wish to receive. Apply your changes, click OK, and try downloading your mail again. Remember that large messages will still reside on the mail server, so be sure to remove this restriction and get all of your mail when you return to a high-speed connection (or have more time for larger downloads).

Viruses

Question: How often should I scan my computer for viruses?

Answer: Everyone uses his computer differently. There is no single right answer, but there are a few helpful guidelines. Scan the system completely when you first install your antivirus software, whenever there is a major update, and anytime a virus or attack is detected. Once the antivirus software is installed and running, it should be active in memory-protecting your PC from the common sources of infection such as malicious Web content, email attachments, and file downloads. For example, if you receive an infected email, the antivirus tool should catch it, so there's no need to constantly scan the entire system. But if a virus alert occurs, deal with the event (usually by cleaning, quarantining, or deleting the infected files) and run a complete scan to double-check the system. Many users also run a complete scan along with their regular PC housekeeping tasks such as defragmenting and backups. As a general rule, scanning once a month is probably adequate, but there's no harm in scanning more frequently.

Get the information
you need, when you need it.

So you finally have the time to sit down and really give your computer the one-on-one time it deserves. You're ready to tweak your machine and are looking for some tips to optimize its performance. You can remember reading some great information in the PC Ops section of *Smart Computing*, but where's this information now—when you need it?

No worries, all of this information and more is just a click away.

1) Go to http://www.smartcomputing.com; log in as a subscriber.

2) Click Search All Articles in the blue toolbar on the left.

3) Put SmartComputing.com's powerful, three-step search to work for you!
   - Step 1: Select *Smart Computing* as your publication to search.
   - Step 2: Search ALL Article Types.
   - Step 3: Type **PC Ops** as your search term and click Search.

Now you can read all of the great tips & tweaks that are available each month in the PC Ops section of *Smart Computing*. You can continue to refine your search by entering specific dates, as well. No matter what information you're looking for, remember that every issue of *Smart Computing* is just a click away at http://www.smartcomputing.com.

Need help using our site?
Call (800) 368-8304 to speak with a friendly *Smart Computing* representative.

March Web-Only Articles

Here's a list of this month's additional articles available to you online as a paid subscriber to *Smart Computing*. To view these articles, click the link in the Web-Only Articles area in the left column of the home page. (Only subscribers can read the complete article.)
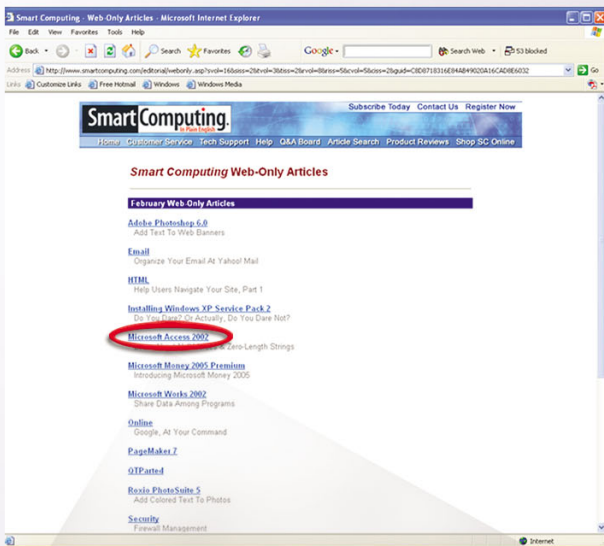
Hardware

For all the latest product reviews, visit the Hardware Reviews & Comparison Charts area at SmartComputing.com (http://www .smartcomputing.com).

Software

Graphic Creation: Painter IX
File Utilities: AZZ Cardfile
PC Operating Instructions

Linux: Blog From Linux

Blogging from Linux isn't a huge problem because most blogging services offer a Web-based interface. Some interfaces, however, are better than others. Several desktop blogging tools exist for Windows and Mac, but for Linux users the best bet is BloGTK. This month we'll show you how to configure and use BloGTK.

The Facts About Windows XP's Faxing Utility

Although WinXP doesn't install its faxing utility as a default component, it's not difficult for you to install it yourself. However, after reviewing its capabilities, we suggest that you only rely on WinXP's faxing utility for sending and receiving the occasional document.

Quick Studies

Microsoft Word 2002 Indent Paragraphs To Emphasize Text
Intuit Quicken 2005 Premier Scheduling Transactions
Broderbund Print Shop 15 Deluxe Insert Headlines & Sentiments
Adobe Photoshop 6.0 Toolbox Basics
Corel WordPerfect 11 Let Them Have Their Say
Email Read Your Blogs In Thunderbird
Microsoft Access 2002 Learn To Use Running Sums
Microsoft Works 2002 Mail-Merge Using Address Book
Security Deal With Software Vulnerabilities
Adobe PageMaker 7 Create Your Own Color Library
HTML Help Users Navigate Your Site, Part 2

SmartComputing.com
Tech Support Center–It's All In Here!

At the SmartComputing.com Tech Support Center, all your tech support needs are covered. With a list of over a thousand error messages, along with sections covering common problems, frequently asked questions, troubleshooting articles, how-to-install articles, and more, you're sure to find an answer to your question.

Error Terror

Ever received an error message and wondered what it meant or what to do about it? At the SmartComputing.com Tech Support Center, you can browse or search through error message listings, all with detailed translations and solutions describing how to take care of the error. Just follow the quick steps below and you'll be on your way to wiping out that pesky error.

1. Go to http://www.SmartComputing.com. If you're a subscriber, be sure to log in, then click the Tech Support Link on the home page.

Tech Support Link

2. Once in the Tech Support Center, scroll down to the Error Messages area and click the appropriate link to either browse or search the error message listings.

Error Messages
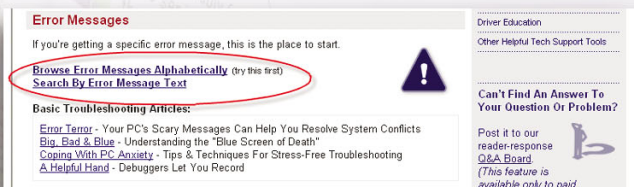
3. If browsing the list, use the links at the bottom of the listings pages to browse page by page or jump to a specific starting letter or use the search box for more specific results. If searching the list, enter part or all of the error message text in the box provided and click Search.

Browsing Errors

Enter all, or at least the first 50 characters, of the BODY of the error message:

○ Contains ○ Begins with

[Search]

N

- Netscape is unable to locate the server: http://www.(address will appear here).com. The server does not have a DNS entry. Check the server name in the Location (URL) and try again.
- Netscape was unable to create a network socket connection.
- No answer (Dial-Up)

You are currently on page 13 of 28
Click here to view the next 50 listings.
Click on any of the links below to move directly to that page.
(! - 80 8e - Ac Ac - Ao Ao - Ca Ca - Cr Ca - Cr Ct - Er Er - Er Er - Fa Fa - Il Im - In In - Mi Mi - No No - Ou Ou - Ou Ou - Se Se - Se Se - St St - St St - Th Th - Th Th - Th Th - Th Th - Un Un - Wa Wa - Wi Wi - Yo Yo - Yo

4. When you find the error you're looking for, click the link. The results page will list the error message, translation, and possible solution to the error.

Browsing Errors

✉ Email This
🖨 Print This

View My Personal Library
Add To My Personal Library

Error

→ **Error:**
Warning SU0168 — Your computer already has an operating system installed, which cannot be upgraded by this version of Setup.

→ **Translation:**
Setup has found an existing operating system on your computer, but that operating system is not eligible for the upgrade you're trying to install.

→ **Solution:**
Obtain an upgrade disc that is valid as an upgrade path from your current operating system. If you believe this to already be the case, contact Microsoft's customer support.

See Also:
Windows 98 Installation Error Messages
Get Windows Up & Running

**Subscribers—be sure to add these great error message listings to My Personal Library for easy access in the future by using the Add To My Personal Library link in the upper right of each listing.

Be sure to try out all the other features of the SmartComputing.com Tech Support Center, as well. They're easy to use and will help you keep your computer and its components working smoothly and efficiently.

Can't find what you're looking for? Let us know. Call us anytime between 7 a.m. and 8 p.m., CST, Monday through Friday at (800) 368-8304 to speak to a member of our Tech Support staff.

Find More Online

We can't possibly fit every helpful tip, tweak, or troubleshooting tidbit in print. That's why you'll find a wealth of resources at our Web site, http://www.smart computing.com. Here are some tips for using our Web site to find more information about the articles in this month's print issue.

Troubleshoot It Yourself

This month's feature focuses on how to troubleshoot your PC. At SmartComputing .com, you will find additional resources on troubleshooting, including additional articles that give you great step-by-step help when you need it most.

More Troubleshooting Online!

If you didn't find the troubleshooting article you need in this issue, check out the list at the SmartComputing.com Tech Support Center. Click the link to the Tech Support Center on the SmartComputing.com home page and scroll about halfway down the Tech Support Center page to the Basic Troubleshooting Articles section. Click the provided link and you will be taken to even more great troubleshooting articles, including the online versions of articles featured in this issue. Find the component you are looking to troubleshoot and you're on your way. You can also search the Basic Troubleshooting Articles by entering a word or phrase to search at the bottom of the Basic Troubleshooting Articles listings page.

Ask Other Readers

If you are still having questions about troubleshooting mishaps or how-tos, check out the SmartComputing.com Q&A board. This popular user-to-user feature is the perfect place to ask other subscribers for help on that particular question you are having. Just click the Q&A Board link in the blue left-side menu on the SmartComputing.com home page. You can then search the board to see if your question has been asked before using the search feature at the bottom of the page. To post a question, click the link in the upper right and fill in the Subject and Question fields and click Send. Your question will then be posted on the board for other subscribers to answer. Be sure to post how the solution worked after your question has been answered.
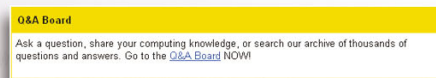
General Site Tips

* Which One Should I Subscribe To?
Wondering if you will enjoy *Smart Computing*'s sister publications? Let us help you. From the home page, click the link in the Latest Issues bar to view a comparison chart of all Sandhills Publishing computing magazines. The chart allows you to see the type of reader, style, content, and purpose of each magazine and which one would be best for you. Click the magazine to preview the articles.

* Monthly Subscriber Updates: As a subscriber to *Smart Computing,* you automatically receive our Monthly Subscriber Update, a monthly email featuring next month's articles available online now, tips

and tricks you might have missed, highlights from our other publications, and special Web site tips for subscribers. When you provide your email address to us through a subscription or registration, you automatically receive this extra free benefit!

* Search All Articles. With over 20,000 articles in our extensive article library, we give you a variety of ways to find what you're looking for quickly. From the home page, click the Search Now link in the Search All Articles section. From this page, you can either browse articles, browse issues, or create your own 3-step detailed search. If you have questions, it's pretty likely we've got the answers.

* Keep My Personal Library Full! My Personal Library is a handy storage feature that lets you keep articles, tips, Q&A posts, and more in one convenient location for future reference. It doesn't take up any space on your PC, so store as much as you like. Content in My Personal Library stays active as long as your subscription is current, so renew today.

* Don't Miss Out. We make it easy for you to renew your subscription online. Log In to the home page and click the Subscribe & Shop link in the upper right or in the blue left-side menu. Click the Renew Subscrip-tion link, choose your subscription option and payment method, and you're set!

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Home phone meets cell phone—together at last. With Uniden's new Bluetooth enabled Digital 5.8 GHz Cordless Phone, now you can use your land line for crystal-clear communications anywhere in the house, or tap into your cell phone minutes to take advantage of free long distance.* The Digital 5.8 GHz Cordless

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downloadable background pictures, handset-to-handset text messaging and an optional wireless Bluetooth headset. All models also come standard with up to 10 handset capability from a single base unit, advanced phonebook features, caller ID, handset speakerphone and a whole lot more. This advanced cordless is even backward compatible with other Uniden Digital 5.8 GHz expandable phones. Now you can get the best of both worlds. Visit us at **www.uniden.com.**

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Compiled by Christian Perry
Graphics & Design by Lori Garris

Play The Slots

Examining Your PC's Expansion Slots

L ike pulling the arm of a slot machine and watching the colored fruit spin, installing an expansion card in a PC usually requires only a single step before we can hear sound, watch video, or experience other benefits the card generates. After all, the slots in our PCs are so user-friendly that simply you can plug in a device and go.

But despite their outward simplicity, these PCI (Peripheral Component Interconnect), AGP (Accelerated Graphics Port), and PCI-E (PCI Express) slots play integral parts in a computer's environment, allowing far more productivity than what's included only with the CPU and motherboard. Capitalizing on close relationships with the system chipset, CPU, and system memory, these slots serve as bloodline extensions to the brain and brawn of our PCs. Let's examine how they unify expansion devices with the rest of the system.

AGP

For years, graphics cards thrived solely on the PCI bus, but as 3D games and other graphics-intensive programs grew more popular, graphics performance over PCI quickly reached its peak. To allow for faster graphics, Intel released the first chipset supporting AGP in 1997, allowing motherboard manufacturers to include a separate, non-PCI slot exclusively for graphics cards.

AGP is based on the PCI standard, but it allows for faster data transfer. One of the primary differences between an AGP slot and a PCI slot is its location in the architecture—the AGP slot is the only slot of its type in the system, which means that it has relatively direct access to the CPU and doesn't share a bus with other devices.

When a device using a PCI slot receives a request to process data, it must complete that request before it receives and processes another. AGP, on the other hand, can receive and process multiple requests, allowing for lightning-quick rendering of graphics.
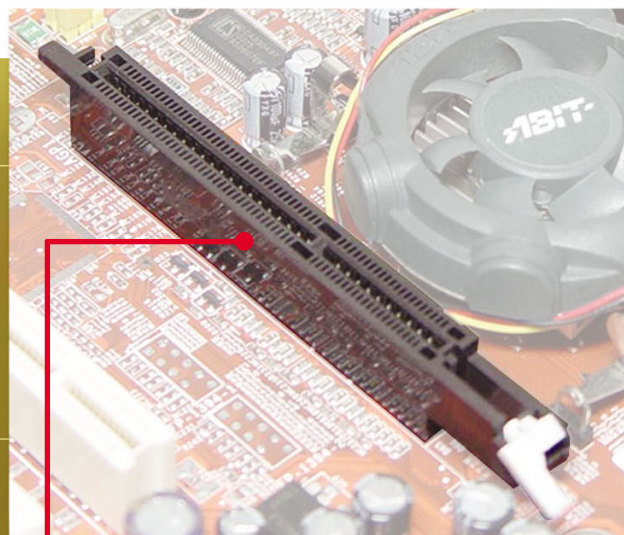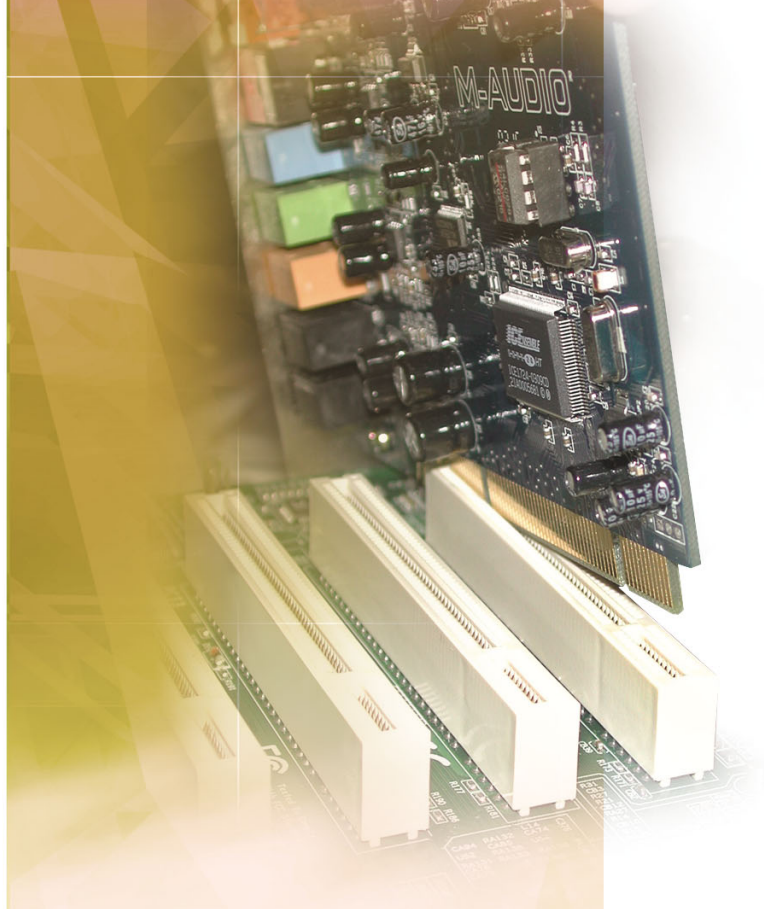
AGP Slot

PCI-E

Last year, Intel, Dell, IBM, HP, and other companies unveiled the PCI-E slot, which represents a huge performance upgrade over traditional PCI. Although PCI-E uses a shared architecture, just like PCI, it doesn't share resources in the same fashion.

Instead of multiple devices using a single shared bus, each PCI-E device has direct access to a single shared switch, which can route the data sent between PCI-E devices and other devices in the computer. This design allows the CPU to communicate with the video card or another PCI-E device immediately after contacting the switch, instead of taking the more convoluted path inherent in PCI. This process is similar to that used by a home network's router, which determines which data packets should be delivered to which computers on the network.

To transfer information back and forth between the device and the switch, PCI-E uses links, each of which contains a lane that can simultaneously send information both to and from the device. The width of these links can vary, allowing anywhere from one to 32 lanes in each link, so that two lanes provide twice the data bandwidth of one lane and so on.
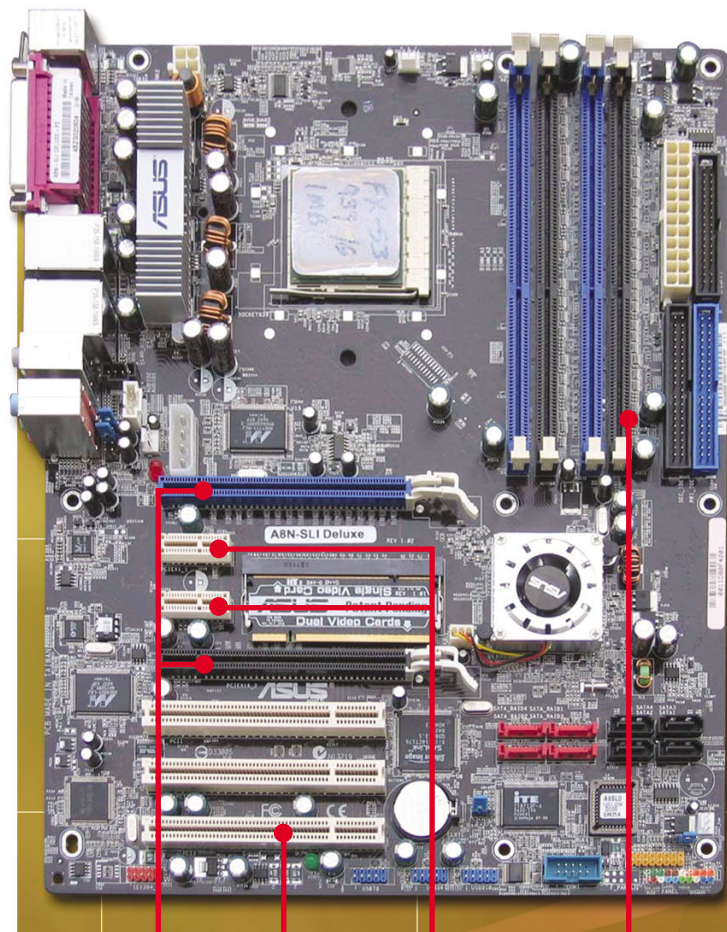
PCI-E x16

PCI Slots

PCI-E x1

Memory slots, which hold DIMMs (dual in-line memory modules), to increase the RAM a computer can access.

PCI

For more than 10 years, PCI technology has allowed motherboards to accommodate a wide range of devices, such as NICs (network interface cards) and sound cards. Using an efficient shared architecture that supports concurrent use of multiple devices, PCI remains an important ingredient in today's PC.

In this shared architecture, devices connected to PCI slots communicate with the system memory or CPU through the southbridge, which is part of the motherboard's system chipset. The southbridge, or controller, works as a gatekeeper for data flowing between PCI devices and the CPU and system memory, using buffering to keep the data flowing at a convenient, efficient pace. For example, a network card can send information to be processed by the CPU, but if the CPU is currently handling another task, the controller will hold the information on the PCI bus until the CPU can accept it. Likewise, the PCI bus can hold information supplied by the CPU that's intended for the PCI device.

Flash Fraud

Correct An Accidental Digital Camera Card Format

After transferring photos from your camera to your PC using your USB (Universal Serial Bus) flash memory card reader, you notice the option to format your memory card. Because you heard that formatting can be a good idea, you let Windows perform the format, and then you stick the card back in your camera. Your blood pressure immediately rises when your camera no longer recognizes the card.

Considering someone once thought an inflatable dart board was a good idea, don't feel too bad if you assumed Windows could properly format your memory card. However, depending on your Windows version and what you selected during the format process, your camera might not recognize the file system Windows used to format the card. The good news is that in many cases, you can ditch the improper format so your camera can once again recognize your memory card.

Singin' The FAT Blues

In the same way that Windows uses a file system to manage the allocation of files on your hard drive, your digital camera uses a file system format its own flash memory storage device, such as a CompactFlash, SmartMedia,

When formatting a card using Windows XP, select the FAT option under File System.

or Secure Digital card. This file system regulates the storage of files on a hard drive, flash memory card, or floppy disk using a map of storage units to determine which files go where.

Digital cameras use a FAT (file allocation table) file system, originally developed by Microsoft in 1976 and still popular in portable devices and in the Windows operating system as an effective method for handling file storage. FAT now comes in several flavors, including FAT12, FAT16, and FAT32, with the numbers signifying the size of the file tables. FAT12 and FAT16 are older technologies than FAT32, but many modern digital cameras still use the older file systems.

Although FAT is generally a dependable file system, problems can occur when a card is formatted using a version of FAT that's not compatible with the host device. If your camera supports the FAT16 file system and you insert a FAT32-formatted card, the camera may not recognize the card and may prevent you from storing data on it.

Most digital cameras can format a memory card directly within the camera, a process that ensures that the card will be formatted using the compatible file system. When you select the option to format a memory card in an older version of Windows such as

Windows 98 or Windows Me, the OS should format the card using the same file system it had before the new format process. But if you format the card using Windows XP or any other system that uses FAT32 as the default file system, you'll render the card unreadable in most cameras.

Format Fix-Up

If you format a memory card using WinXP and your camera no longer recognizes it, don't panic. Format again, but this time select the correct file system. In My Computer, right-click the drive assigned to the card reader and select Format. Under File System, select FAT (which is FAT16), check that Default Allocation Size is selected, make sure that Quick Format and Compression are unchecked, and click Start.

Reformatting using the FAT option should work, but if it doesn't, try formatting the card using the format utility in your camera (consult your manual if you're not sure how to do this). Still no luck? If you have access to a PC that uses Win98, format the card using that PC.

As a last-ditch option, you can try a format using the command prompt. Click Start, click Run, type **cmd.exe**, and click OK. At the prompt, type **format x:/FS:FAT**, where *x* is the reader containing your memory card. Triple-check to ensure that you entered the correct drive letter, because formatting will wipe out all information on the drive. Press ENTER.

To avoid format incompatibility problems in the future, always format your card using your camera's built-in formatting function. This will guarantee that the card retains a file system that your camera recognizes. If your camera doesn't include a format option, or if you otherwise must format the card using Windows, always use Win98 or WinMe, or select the FAT option in WinXP. ❚❚

BY CHRISTIAN PERRY

Examining Errors

BY JEFF DODD

Problem: While attempting to install Pinnacle Instant CD/DVD, a reader receives an error message that prevents him from completing the installation.

Error Message: "ERROR 1324: The folder path 'Shared Files' contains an invalid character."

Solution: Although it can appear for various reasons, such as a programming bug or a corrupted Windows Installer, the Error 1324 code most likely reveals a problem between an identified folder and its corresponding entry in the Windows Registry. The generic nature of this message prevents us from determining its particular cause, but we can suggest two common resolutions.

First, the reader should open My Computer, locate the Shared Files folder on his PC, and verify that its name doesn't contain any of the following characters: < > / \ : * ? | ".

Windows cannot recognize these characters. If the folder name does indeed contain one or more of these characters, the reader should then right-click the folder and select Rename from the pop-up list. Next, he should type **Shared Files** and press ENTER to give the folder its correct label.

If that doesn't work, the reader should try downloading and installing a new copy of the Microsoft Windows Installer. This program helps ensure the proper installation and configuration of third-party software, but it may not work properly if it becomes corrupted. The reader can get the Installer directly from Microsoft at http://www.microsoft.com/downloads/details.aspx?FamilyID=5fbc5470-b259-4733-a914-a956122e08e8&DisplayLang=en. He should follow the installation instructions provided at the download Web site.

Problem: A reader complains that he has lost all sound on his Windows 98 computer. When he uses the DirectX Diagnostic Tool to determine the source of his trouble, he receives an error message.

Error Message: "Error: Problem getting extra sound info, result code= 0X80004005 (generic failure)."

Solution: The reader's problem most likely involves the corruption of a DirectX-related setting in the Windows Registry.

To rectify the situation, the reader should first try downloading and installing the latest version of DirectX. He can get it by visiting the DirectX 9.0 download site at http://www.microsoft.com/downloads/details.aspx?FamilyID=0a9b6820-bfbb-4799-9908-d418cdeac197&displaylang=en. Then, after rebooting and checking his system's audio, the reader also should download the latest **driver** (a program that enables a hardware component to communicate with the rest of the system) for his sound card. He can get the driver by visiting the Support or Download area of the sound card manufacturer's Web site.

If the infusion of updated software fails to fix things, we advise the reader to strongly consider reinstalling his OS (operating system). An older computer—and any computer running Win98 is an older computer—tends to have an accumulation of issues that just won't go away on their own. Reformatting the hard drive and reinstalling the OS takes care of these issues and prepares the system for another year (or two or three or more) of flawless performance.

The last resort is to check the sound hardware to determine whether it's functioning properly. The reader can do that by temporarily transferring the equipment, including the sound card and speakers, to another PC.

Problem: A reader recently installed Norton AntiSpam on a Windows XP computer. Shortly thereafter, he began receiving an error message each time he opened Microsoft Outlook. When he closes the error message, Outlook shuts down, as well. The user reports that if he immediately reopens Outlook after receiving the error message, he doesn't receive an error message and can use the program without further complications.

Error Message: "Microsoft Visual C++ Runtime Library. Runtime Error! Program: C\Progra~1\ Micros~2\Office\Outlook.Exe. This application has requested the Runtime to terminate in an unusual way."
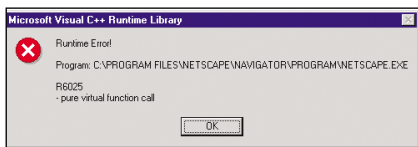
Solution: The reader isn't alone in receiving this error message; a number of users have encountered this message while trying to run Norton AntiSpam and Microsoft Outlook on the same PC. Unfortunately, neither Symantec nor Microsoft has taken responsibility for the problem and issued a fix. Until they do, the best solution is to disable Norton AntiSpam. The reader can accomplish this feat in one of two ways, depending on how he installed the utility.

If the reader installed the utility as a standalone product, he can disable it simply by removing it from his PC. He should open the Control Panel, access the Add Or Remove Programs option, select Norton AntiSpam in the list of installed products, and click the corresponding Remove button. If the reader purchased Norton AntiSpam within the month, he may be able to return the product to the retailer for a refund.

If the reader installed AntiSpam as part of the Norton Internet Security suite, however, he should disable it by renaming the file that links to Microsoft Outlook. Here's how: After first closing the utility, the reader should open My Computer; double-click the icon for the Windows drive (the drive on which WinXP is installed); and burrow through the Program Files, Common Files, Symantec Shared, and AntiSpam folders.
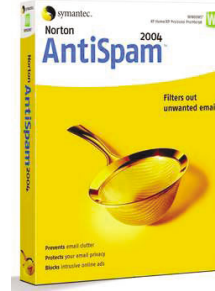
(*NOTE: It's possible that the Symantec Shared folder will be somewhere other than the Common Files folder. If the reader can't find the Symantec Shared folder, he should use WinXP's Search utility to locate it on his PC.*)

Once inside the AntiSpam folder, the reader then should locate the Msouplug.dll file, right-click it, select Rename, type **msouplug.old**, press ENTER, and reboot his PC. Renaming the Msouplug.dll file effectively disables AntiSpam while preserving the other Norton Internet Security components.

Problem: A WinXP user reports that he frequently receives a particular error message, one that we addressed in "Examining Errors" in our August 2004 issue. He tried the solution we proposed, but it didn't eliminate the error message, so he wants to know what else he should try.

Error Message: "WJView Error. Could not execute main. The system cannot find the file specified."

Solution: Because the common solution to this problem didn't work for the reader, we can only assume that his PC is infected with a piece of adware known as WebSavings. This program funnels product alerts and money-saving offers to consumers. The reader can eliminate the adware and the error message by removing all reference to WebSavings from his PC. Open the Start menu, select Run, type **regedit** in the field, and click OK.

(*NOTE: Before modifying any Registry entries, it's best to back up your data. One incorrect change in the Registry can leave your system inoperable.*)

In the Registry Editor window, the reader should open the HKEY _LOCAL_MACHINE\SOFTWARE\ MICROSOFT\WINDOWS\CUR-RENTVERSION\RUN key and scour it for any keys or values that refer to Websavingsfromebates, Websearch, and Couponsandoffers. He then can delete each offending key or value by right-clicking it and selecting Delete.

After closing the Registry Editor, he should open the Start menu and click Search. From the Search Results window, he should search the Windows drive for folders labeled Websavingsfromebates, Websearch, and Couponsandoffers. Upon finding the folders, he should delete them by right-clicking each one and selecting Delete from the pop-up menu. When he finishes, the reader should reboot his system.

Have questions about an error message you've seen? Send us your message (errormessages@smartcomputing.com), and we'll try to decipher it. Tell us what version of Windows you're using, give the full text of the error message, and provide as many details in your explanation as possible. Volume prohibits individual replies.

Fast Fixes

FireWire Update For Windows XP

Problem: You install SP2 (Service Pack 2) on your WinXP computer and experience various problems with devices, such as digital cameras, that transfer data through a FireWire (or IEEE 1394) port.

Solution: Download and install this 367KB update from Microsoft to prevent problems with your FireWire ports. To download the update, type the URL (uniform resource locator) we listed below in the Address field of your browser window. After Microsoft's Download Center page loads, type **KB885222** in the Keywords text box, and click Go. Click the link named Update For Windows XP (KB885222), and in the Validation Recommended box, click Continue. On the next page, you can choose to validate your copy of Windows, but for faster service, click No and click Continue. On the following page, in the Genuine Microsoft Software box, click Download. When the file transfer is complete, double-click the file (WindowsXP-KB885222-x86-ENU.exe) and follow the on-screen prompts to finish the installation.

Updates For Pinnacle Systems Studio Version 9

Problem: You experience various problems with Studio Version 9.

Solution: Install an updated version of the program. To download the 15.8MB update, type the URL we listed below in the Address field of your Web browser window. After Pinnacle Systems' home page loads, point to the Support menu and click Downloads. In the Top Downloaded Drivers box, click the link titled Studio 9.3.5 Patch, and on the page that loads, read carefully through your list of options. If you have Studio 9.3 or newer installed, scroll down to the Download box and click the OS (operating system) you use to begin the file transfer. If you have never updated your version of Studio 9, scroll farther down the page to find the Full version patch. Notice that the Full version patch is nearly 60MB, so dial-up users shouldn't attempt to download this file; instead, they should contact Pinnacle Systems for assistance. After the transfer is complete, double-click the file to install the updates.

Security Updates For Windows 2000

Problem: Microsoft discovered a number of flaws that could let a cracker take control of your Win2000 PC.

Solution: Download and install this 3.8MB update to protect your data and your computer. To download the update, type the URL we listed below in the Address field of your browser window. After Microsoft's Download Center page loads, type **KB885835** in the Keywords text box, and click Go. Click the link named Security Update For Windows 2000 (KB885835), and on the right side of the page, click Download. (*NOTE: Make sure you're clicking the Win2000 link rather than the WinXP link.*)

When the file transfer is complete, double-click the file (Windows2000-KB885835-x86-ENU.exe) and follow the on-screen prompts to complete the installation. After you install this update, you should download another security patch. The second patch is 507KB, and you can locate it with the same step you used to find the first update. From the Download Center page, type **KB873339** in the Keywords text box, click Go, and then click the Security Update For Windows 2000 (KB873339) link. This action will let you download and install a file (Windows2000-KB873339-x86-ENU.exe) that further shields your Win2000 machine.

Fix Of The Month

Critical Firewall Update For Windows XP SP2

Problem: After you set up your Windows Firewall options with SP2, you might encounter a flaw that lets other people access the data on your computer when you use a dial-up Internet connection.

Solution: Download and install this 385KB update. To download the update, type the URL we listed below in the Address field of your browser window. After Microsoft's Download Center page loads, type **KB886185** in the Keywords text box, and click Go. Click the link named Critical Update For Windows XP (KB886185). If applicable, click Continue in the Validation Recommended box; on the next Web page, you can choose to validate your copy of Windows, but for faster service, click No and click Continue. On the following page, in the Genuine Microsoft Software box, click Download. When the file transfer is complete, double-click the file (WindowsXP-KB886185-x86-enu.exe) and follow the on-screen prompts to finish the installation.

Need help with your hardware or software? Looking for simple explanations on technical subjects? Send us your questions!

Get straight answers to your technical questions from *Smart Computing*. Send your questions, along with a phone and/or fax number, so we can call you if necessary, to: *Smart Computing* Q&A, P.O. Box 85380, Lincoln, NE 68501, or email us at q&a@smartcomputing.com. Please include all version numbers for the software about which you're inquiring, operating system information, and any relevant information about your system. (Volume prohibits individual replies.)
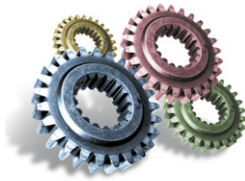
Utilities

Q I have a Gateway computer with Windows Me and a 60GB hard drive. When I first set up the computer, I partitioned the hard drive into three 20GB partitions. Now I would like to eliminate the partitions. Do I have to completely load what I have on to another hard drive and reformat this one then load it back on, or is there an easier way to do it?

A The easiest way to accomplish your goal is to use a tool such as Symantec's PartitionMagic 8.0 ($69.95; http://www.symantec.com). Among PartitionMagic's many features is the ability to merge partitions without losing the data stored on the partitions. PartitionMagic isn't alone in this market, though it has an excellent reputation, and we've had good luck using it in the past. The actual partition consolidation process uses a wizard-based system to walk you through the process.

Before you dive into consolidating your partitions, take a moment to follow our golden rule: Always back up your data before attempting to dramatically alter your computer. Even though you may never need your backup, it will provide you with two things—peace of mind and a safety net in case the drive consolidation goes haywire.

Depending on the amount of data stored on your hard drive, you may be able to back up your data onto either CD-ROM or DVD. Larger archives may require a dedicated hard drive.

If you don't want to spend the money on a partition utility, you can use a spare hard drive as a temporary holding space for your data. The hard drive should have enough capacity to hold all of your data. The procedure you'll follow is to install the second hard drive, copy your data to it, format your original 60GB hard drive, and reinstall WinMe. Then you'll need to reinstall all your applications and copy your data from the second hard drive over to your single partition 60GB drive. If this sounds like a lot of work, it is. Once you use a utility such as PartitionMagic, you'll wonder how you ever lived without it.

Windows

Q My PC froze up last night. When booting Windows 2000 Pro, just as it gets to the Windows 2000 title screen, I get a blue screen with the message "***STOP:0x0000007B (0x81666A30,0xC0000102,0x00000000,0x00000000) INACCESSIBLE_BOOT_DEVICE." The message goes on to say that if this is the first time I've seen the Stop error screen, I should restart the computer. It then suggests that I run CHKDSK. I've rebooted, but the screen still comes up again. I don't know how to get to CHKDSK.

A The symptoms you've described are typically an indication that your hard drive is failing or that the file system on the hard drive has become corrupted. The first step is to run CHKDSK as suggested. CHKDSK is short for Check Disk, a utility that will verify the integrity of your file system.

To run CHKDSK, you need to be in Safe Mode. Safe Mode provides you with limited access to your computer's hardware and OS (operating system). To enter Safe Mode, restart your computer and repeatedly press F8 as Windows is about to boot. When prompted, choose Safe Mode With Command Prompt.

Depending on your exact configuration, you may be prompted to select an OS. Select Windows 2000 and press ENTER to boot into Win2000's Safe Mode. You should see a command line (similar to the old DOS prompt). At the command line, type **C:\> chkdsk /f /r**. The f parameter tells CHKDSK to fix any errors on the drive, while the r parameter tells CHKDSK

to recover any usable data from bad sections of your file system.

CHKDSK will scan your file system, verifying the integrity of the system's metadata. **Metadata** is simply data about data. It contains information that Windows uses to store your user data on the hard drive.

On a large hard drive, running CHKDSK can take quite a while. Under no circumstances should you interrupt CHKDSK. Doing so can cause serious damage to your OS. When CHKDSK finishes scanning your hard drive, reboot your computer.

If CHKDSK was able to repair your file system, you should be able to reboot your computer and have Windows boot properly. Should CHKDSK be unable to repair your file system, or you can't boot into Safe Mode, your hard drive is probably damaged beyond repair.

Before discarding your hard drive, you may be able to recover some data despite the above failures. If you have access to another computer, connect your problematic hard drive to the second computer and try to read the data. Although Windows itself is unable to boot properly, your data might be safe and sound.

Utilities

Q I recently purchased an HP 3970 scanner. It works well—perhaps too well. Images from my scanner are too big for posting on eBay. When I photograph items with my digital camera, the images are just right. Is there a way I can make scanned images smaller?

A The HP 3970 scanner is capable of creating scanned images with a resolution of up to 2,400 x 2,400 dpi (dots per inch). High resolution when scanning translates into accurate images that look great on your computer. However, the size of the images needs to be adjusted to fit what eBay (http://www.ebay.com) allows through its Picture Services.

When it comes to modifying images for display on the Internet, dpi isn't as important as the image size, which is measured in pixels. An easy way to understand pixels is to imagine a picture made up of thousands of small pieces. Each of these pieces is a pixel, and eBay requires your images to conform to a pixel geometry

of between 330 high x 440 wide and 600 high x 800 wide.

To create your images with the proper geometry, choose the appropriate resolution on your scanner. For Web use or email, 1,200 x 1,200 dpi is more than adequate. Choose JPEG (Joint Photographic Experts Group) for the output format. Although there are many aftermarket image processing utilities, HP bundles its HP Photo and Imaging software with the HP 3970. This software will let you shrink (or enlarge) your images as needed. eBay's Picture Services also has the ability to do image editing right in your browser.

If you want to post larger images with your eBay listings, you can use a separate server to do so, bypassing the limitations of Picture Services. eBay has an excellent tutorial at http://pages .ebay.com/help/sell/photo_tutorial3.html that lists several options that may give you greater flexibility in making your listing stand out from the rest of the pack.

Hardware

Q I recently bought a SanDisk Cruzer Mini 256MB flash drive for the sole purpose of storing my digital photos. I have tried to install the driver for it, but it prompts me to insert my WinMe disk. My laptop came with WinMe preinstalled, and I have no disk. My Linux flash drive was no problem. Should I return the SanDisk flash drive? The package says the drive is WinMe compatible.

A Even though your laptop came preinstalled with WinMe, you should have received a full installation disc or a recovery disc

from the vendor. Recovery discs are usually tied to a particular computer hardware profile and contain the appropriate drivers, as well as the files necessary to reinstall WinMe. Our first recommendation would be to contact your vendor to find out why it didn't include either of these discs.

Also, you shouldn't need to install any drivers to use the Cruzer Mini with WinMe. Because it's a USB (Universal Serial Bus) device, it should appear as a distinct drive in Windows Explorer when you insert the device. The only drivers that SanDisk distributes are for Windows 98 SE. If

the Cruzer Mini isn't showing up when you insert it into your USB port, there may be a problem with your USB drivers.

Although you don't have an installation or recovery CD for WinMe, you can download the USB drivers from http://www.usb-drivers .com/drivers/63/63237.htm. You'll need to download the file named USB-WinME.exe. Double-clicking on this file will extract 17 drivers that you can install.

Multimedia

Q I have more than 1,500 hours of material on open reels, LPs, and cassettes that I am transferring to CDs. For each 30 to 60 minute segment, I first use a PowerWave USB interface and Microsoft Plus! Analog Recorder to record the segment and convert it to a WAV file. Then I use Microsoft Plus! Audio Converter to change it to an MP3 file and then Sonic to transfer it to a CD. As a precaution, I restart the computer after each segment (to reclaim RAM). The computer is a new Dell Dimension 4600 Pentium 4, 2.66GHz, with 512MB RAM and a 120GB hard drive that runs Windows XP. I know it's safer not to touch the computer when burning a CD, but what about during that first step, when I'm recording? I'd like to be able to surf the 'Net, answer email, or use Quicken while doing this lengthy project. I wouldn't use it for gaming or something that would really consume RAM. Is it safe or do I risk harming the recording?

A Although your caution is admirable, in our opinion it's also a bit excessive. With today's PC hardware, it's difficult to tax a system's resources too far unless, as you noted, you're playing games. In our experience, any type of audio processing is more CPU intensive than memory intensive.

Although restarting your computer will help to keep your memory consumption at a minimum, the amount of time you're losing by doing so after every audio import will add up over time. It's important to remember that for all of the criticism Microsoft has received in the past, WinXP is the best OS it has shipped to date. Both in terms of its memory management and its ability to run multiple applications simultaneously, it far surpasses its predecessors.

If you want to monitor your memory and CPU utilization during one of your importation sessions, you can use WinXP's Task Manager. To launch Task Manager, right-click your Taskbar and select Task Manager. Next click the Performance tab, and you'll be able to view the CPU and memory usage as your other applications run. If you want to find out about a particular process, click the Processes tab. You can click the column header to sort by process, user, CPU usage, or memory usage.

Software

Q Several readers have written recently, asking how to rid their PCs of a persistent spyware program: Ibis Toolbar (also known as Bubba.Wintools). The application heavily infests systems with multiple folders and multiple values in multiple Windows Registry keys.

A The most common complaint from readers is slower system performance and spying on online activities, but the biggest rants are because the program actively resists removal. Its methods of resistance include planting a sleeper application that re-creates the spyware almost as soon as you delete it, a technique that appears to baffle such spyware stalwarts as Lavasoft's Ad-Aware (http://www.lavasoftusa.com) and Spybot Search And Destroy (http://www.safer-networking.org). It also blocks access to some spyware removal tool Web sites.

How do you get the toolbar in the first place? You may have thought it was a good idea to add a search toolbar to your browser without reading the fine print on the end-user license agreement. You gave permission for it to be installed and to spy on you.

Oops.

Before we begin to tell you how to remove Ibis, you should know that there are several commercial spyware removal programs that claim to be able to remove the Ibis Toolbar from your computer. To find them, do an online search for the phrase "remove Ibis Toolbar."

However, there are some free alternatives to try first.

The manual removal process for Ibis Toolbar is so lengthy we don't have room for it here. Instead, we're going to describe a removal process that involves several free applications and the Windows Add/Remove Programs function.

What many people writing to various tech forums on the Internet report is that when you attempt to disable Ibis, it doesn't fight back as hard as it does if you try to kill it.

Nevertheless, try this as a beginning step: Double-click Add/Remove Programs in the Control Panel. Scan the list of installed programs until you find WebSearch Toolbar, WebSearch Tools, Search Assistant, and Win-Tools Easy Installer. Remove each of them, but be a bit cautious to remove only program and Registry entries associated with these programs. If you have a third-party uninstaller to use that will back up any deletions, that's better.

Uninstallers? Look at programs such as McAfee QuickClean, which includes its Un-Installer application at http://us.mcafee.com but requires an annual license to function, or Your Uninstaller 2004 from http://www.ursoft ware.com. Symantec no longer markets its CleanSweep product or any replacement for it. Although there are several other shareware application uninstallers available, you'll want to check

The manual removal process for Ibis Toolbar is so lengthy we don't have room for it here.

to be certain they permit you to back up things you try to uninstall, just in case of overeagerness.

If using Add/Remove Programs or a third-party uninstaller doesn't kill the Ibis Toolbar, try the following: Download the free Ad-Aware and Spybot Search And Destroy applications from the Web sites listed above. Also visit http://www.win patrol.com for the WinPatrol process monitoring tool. You can download a fully functional free version before deciding whether to buy.

Run Windows in Safe Mode (see Windows Help for your version to learn how to start in Safe Mode). While in Safe Mode, install WinPatrol and run it. On your first pass, it will detect and begin to disable the Ibis Toolbar. While WinPatrol runs in the background, run both Ad-Aware and Spybot several times, until they both stop finding any files or Registry entries related to Ibis. You run WinPatrol while this is going on so it can stop the files from being re-created.

This will take a few hours, but persistence will pay. Eventually, you'll be Ibis-free.

Hardware

Q I'm still using Windows 95 and tried to use an Internet phone answering service. I got the messages, but they wouldn't play. A message told me I was missing CAB files. This must be for the sound. Can I get those files and put them into my system?

A .CAB is the file name extension Microsoft uses to designate compressed cabinet files, usually containing OSes or, less frequently, application files used during the installation of that system or application. In your case, we'd hope the requisite CAB files are either on the original Win95 installation disc that should have come with your computer, or they've been stored in a separate folder (directory) on your hard drive.

If you no longer have your Win95 CD (or never had one), search your entire hard drive for files named *.CAB (that's an asterisk, a period, and the word "CAB" in either upper- or lowercase). If they cannot be found, start asking friends if they have a Win95 installation CD available to loan you.

When you attempt to run your messages and you get the same error, you may have an opportunity to install the requisite files. One note, however: None of this will do any good if yours was a relatively early and inexpensive PC where the vendor lowered the price by leaving out a sound controller. The same problem applies if you have no external speakers. If you have no hardware with which to play or to hear the sounds, no driver software installation is going to help you.

Hardware

Q I recently purchased a 128MB Lexar Media JumpDrive Secure flash drive. I can plug it directly into a USB port in WinXP, and I am in business in a short time. I also have a computer that has Windows 98 Second Edition. When I plug into the USB port, the system cannot find a driver. I also looked in the Win98SE disc, and it still could not find a driver. What driver am I looking for and

where can I find it? I have no documentation for the Lexar.

A There is a Win98SE driver for Lexar JumpDrives at http://www.lexar.com. Type **Windows 98 SE** in the search field in the upper-left corner of the company's main Web page. If you have no Web access, you can reach the company's support line at (510) 413-1275.

Frequently Asked Questions

Answers to users' most common questions about
Backup Issues

FAQ Is it necessary to go through the hassle of backing up an entire PC, or are there only specific items that I should worry about?

When a failure occurs, applications and data can be lost, often irretrievably. The one way to really protect your important data is to create periodic copies (backups). Backups should be tailored to your particular needs. Today, most computers ship with system restore discs that can return a PC to its original factory state. Restore discs are handy, but they do not account for any new programs or data that may have been on the system. To really protect yourself, it's important to perform your own periodic backups to CDs or DVDs.

If you're a casual PC user running a few basic applications, you probably don't need a full backup. Rather, keep the system restore discs on hand (along with the installation discs for other applications you use such as Microsoft Office) and just back up your data files (such as Word documents or downloaded image files). However, if you're a busy PC user who runs lots of applications, occasionally take the time for a full backup and then supplement that full backup with copies of your current data files. The rule of thumb is simple: If you can't live without it, back it up.

FAQ What hardware and software should I use to create backups? Which do I really need: backup software or a ghosting application? How are these different?

If you're just interested in protecting your work in progress (such as Microsoft Money files), save an additional copy of the desired file(s) to any everyday rewriteable disc rather than the local hard drive or simply use My Computer to copy a desired file and paste it to your CD or DVD. (Your packet-writing software such as Roxio's Drag-To-Disc [part of Easy CD & DVD Creator 6—$49.99; http://www.roxio.com] will do the rest). However, if you'd rather protect the whole works (which is a good idea to do periodically), back up the entire system. You can certainly use tape backups, but they tend to be slower and more expensive than the optical drives in almost every PC today.

If you stick with an optical drive, select backup software that will accommodate your particular drive. Not all backup software supports every drive model, so be sure to check compatibility before making a purchase. Dedicated external backup hard drives are another popular option and include their own backup utilities.

Ordinary backups don't always copy every file or system setting. You may have to reinstall the operating system and backup software before you're able to restore the backup. Many users opt for ghosting software (such as Symantec's Norton Ghost 9.0; $69.95, http://www.symantec.com), which specifically creates a sector-by-sector image of your drive and creates bootable media. When disaster strikes, you can restart with the bootable media and then directly restore the image file.

Remember that a backup (or system image) only reflects your PC at that moment in time. You will still need to back up your important work files as they change.

FAQ My backup software says I need 32 CD-RWs (CD-rewriteables) for a complete backup. How can I do this with fewer discs?

Look at the amount of space used on the hard drive and divide it by 530MB. This should be roughly the number of CD-RWs you need for an uncompressed backup. For example, if you want to back up 10GB, plan on about (10,000MB divided by 530MB) 19 discs. There's no way around it. Given today's huge 100GB, 200GB, and larger hard drives, it's no surprise that you'd need many discs for a full backup. Note that some backup applications will assume that you're backing up to CD-R even if you're actually backing up to much more capacious DVD-R media; therefore, the count may be greatly exaggerated if you're saving data to DVDs.

There are a few tricks that may help to reduce the number of discs. First, try CD-RW compression (or select the compression feature in your backup software). Compression can dramatically reduce some file sizes. DVD-RWs are another popular option. With 4.5GB available on a DVD (and dual-layer DVDs coming soon), that same 10GB backup would only take three DVDs. If you're really in a crunch for discs, select fewer folders to back up (though you would no longer be creating a full backup). ▌▌

Misbehaving App & 321 Studios Revisited (Yet Again)

A power outage corrupted some system files related to Outlook Express. I made some inquires about an easy way to replace the corrupted files, and someone suggested PC MightyMax. Although the software claims to support all Windows 2000 versions, I had problems running it on my Windows 2000 Pro system and uninstalled it. Unfortunately, parts of the program remained on my computer and downloaded the program again without my consent. Can you reach someone who might be able to offer some tech support?

Name Withheld
Derby, Kan.

According to its Web site (http://www.pcmightymax.net), PC MightyMax is capable of fixing numerous Windows errors, but the reader was only interested in uninstalling the software at this point. We used the email address provided to contact PC MightyMax Inc. and received a reply from an unnamed representative who claimed that the reader may not have restarted his system after uninstalling the software. A portion of PC MightyMax runs constantly in the background and won't complete the uninstallation process until the system restarts.

As an alternative to restarting the system, the representative suggested removing a Registry key. Messing around in the Registry, however, can be dangerous, and, as it turns out, the reader found an easier solution. He ran Norton WinDoctor (included in Symantec's Norton Utilities 2002, now part of the SystemWorks suite; http://www.symantec.com/sabu/sysworks/basic) to scan and fix errors in his Registry.

I wrote you previously regarding my rebate from 321 Studios. I've been following the situation closely and know that the company has folded due to legal problems. Yet, I've seen copies of 321 Studios' software for sale at local retail outlets. If these versions require activation, as my copy did, how is this possible? I've also seen similar products on the shelf and was wondering about the legal status of this software.

Barlow Soper
Ruston, La.

321 Studios distributed DVD X Copy, a popular software suite that lets users create backups of DVD movies. The movie industry filed a lawsuit against 321 Studios and was granted an injunction that prevents the company from selling its software. With no way to create revenue, 321 Studios eventually had to fold. But because the injunction only applies to 321 Studios, there is no law currently preventing other companies from selling a similar product. Even so, anyone considering a purchase of similar software should remember the lessons we've learned from the 321 Studios situation (namely, there's no guarantee that the company is going to be around to support the product and/or make good on any rebates).

As for lingering versions of DVD X Copy at retail locations, they're likely leftovers that resellers (in this case, Barlow's local CompUSA store) purchased earlier. (The injunction doesn't prevent resellers from selling copies they've already purchased.) Although we didn't see any copies of DVD X Copy on CompUSA's Web site, we did find a few online retailers with copies for sale. Activation, however, may be problematic. Some customers have apparently been able to activate recently purchased copies, but in some instances, it has taken more work than it should. Remember: 321 Studios no longer exists, so finding support for its product may prove exceedingly difficult.

Cranky Old Men
& Young Whippersnappers

Sometimes I feel like a cranky, cantankerous old man. Looking back over some of my previous columns, I began to wonder if people might think I were (ironically, given my position) some sort of Luddite, always grousing about technology and commenting about how silly, useless, and/or unnecessary much of it is.

I'll take this opportunity to set the record straight.

First, I'm neither cranky nor cantankerous. I'm really a very sweet, kind, gentle person who happens to have a low tolerance for idiocy. Well, OK, maybe I am a little cranky. But around here one must cultivate a certain "crusty old editor" persona if one is to get any respect. Especially because a lot of the younger folks who work here are sharper than I am. Also, they tend to talk (chatter, actually) about things of which it turns out I know very little: computer games, contemporary music (I'm using the term "music" very loosely), modern-day styles of dress, current television shows, local clubs to which some of the younger writers (and, appallingly, even some editors) head after work on Fridays, etc. I realize that I sometimes sound cranky, but mainly that's just a pose I've adopted so that these young whippersnappers will give me some respect. (Now, it's been suggested that I instead "earn" their respect by proving myself a "knowledgeable and skilled" journalist. How "naive." That seems like entirely too much work to me. I'll just stick with cranky.)

Second, I'm not old. I'm mature. I happen to be at the peak of my intellectual and earning powers. (Wait, that can't be right. Let me get back to you on this one.) OK, I may be getting a little long in the tooth, but only compared to some of the children who work here. Many of them are very young, especially the newer writers and copy editors. Not long ago, I asked the age of a writer whose birthday we were celebrating. (By "celebrating" I mean "eating lard-encrusted, sugar-filled, artery-clogging, calorie-laden goodies guaranteed to result in almost immediate cardiac arrest." Not that I'm allowed to eat such things, these days.) He was 24. Twenty-four years old! I have *socks* older than that. I have a jacket that's as old as he is. (True, my wife makes me keep it in the garage, but it's still in fine shape,

really. In fact, much—well, some—of the down filler is actually still in the jacket.) At any rate, the young folks here think it's pretty funny that I'm old enough to be their father. They snicker and make remarks about sending me to The Old Editors' Home. (At least, I think they do. I can't actually be positive about that, because I don't really hear that well anymore.)

All right, so I'm getting a little old and cranky. And deaf. But I'm not a Luddite.

I happen to love technology, especially computer-related technology. (Of course, nowadays, almost all technology is computer-related.) I love the power, the feeling of unlimited opportunity that PCs give us. I enjoy being able to uncover almost any fact with a bit of online research. I like playing what-if games with budget spreadsheets. (Hey, if you have to do budgets, it might as well be fun.) I like knowing that my word processor will automatically correct my spelling when I type **paralell** or **ocassion**. I love being able to communicate almost instantly with friends and family. Mainly, I like the idea that I can augment my brain with the power of the computer, especially because it seems as if my brain could use a bit of augmentation these days.

Still, as fond as I am of technology (and let's remember that I make my living using and explaining these tools), you have to admit that some technologies are simply begging to be poked fun at. There's just something silly about (I'm not making any of this up) USB-enabled mousepads, computer-controlled running shoes, Web-connected refrigerators, digitally wired sweatshirts, mouse bungee cords, a mechanical parrot that reads your email to you, a networkable fork, and software that translates your dog's barking into easily understandable English phrases.

OK, I did make one of those up. Can you figure out which one? See? You're not really sure, are you? I rest my case. ▐▐

BY ROD SCHER

Rod Scher *is a former software developer and a recovering English teacher. He's also the publication editor of* Smart Computing *and will no doubt continue in that position until such time as his boss reads this column. Contact Rod at* **rod-scher@smartcomputing.com.**

Quietly Setting A Whole New Standard.

Experience the unmatched combination of noise reduction and audio performance of our QuietComfort® 2 Acoustic Noise Cancelling® headphones.

Unwanted noise is everywhere. The engine roar inside an airplane cabin. The blaring sounds of city streets. The annoying din of the office. Bose® QuietComfort® 2 Acoustic Noise Cancelling headphones help you hush them all. Put them on and slip into a safe haven – where you can relax and enjoy peace and solitude or listen to your favorite music.

Proven Noise Reduction Technology.

Our original noise-reducing headphones were designed primarily for airplane travelers. But owners soon started telling us how much they enjoyed using them in other places. So we designed our QuietComfort® 2 headphones around the same patented technology that electronically identifies and dramatically reduces noise, while faithfully preserving the music, movie dialogue or tranquility you desire. The *Philadelphia Daily News* says that "Even in the noisiest environment, wearing these phones creates a calming, quiet zone for easy listening or just snoozing."

Our Best Sound Ever.

QuietComfort® 2 headphones deliver the best audio performance we've ever developed for headphones. Highs are impressively crisp and clean. Lows are deep and enveloping. Vocals are reproduced with lifelike authenticity. When audio critic Wayne Thompson heard our QuietComfort® 2 headphones, he reported, "Bose engineers have made major improvements." Whether you're looking for noise reduction or high-performance headphones for music, we think you'll agree – QuietComfort® 2 headphones capture the essence of serenity and sound.

Enhanced Comfort and Portability.

Respected columnist Rich Warren says, "The QuietComfort 2 lives up to its name, enveloping you in blissful sound in the utmost comfort. It's easy to forget they're on your head." To enjoy peace and tranquility, simply turn them on. To add Bose quality sound, attach the included audio cord and connect them to a home stereo, laptop computer, portable CD/DVD/MP3 player or in-flight audio system. When you're done, their convenient fold-flat design allows for easy storage in the slim carrying case.

Experience Them for Yourself.

We don't expect you to take our word for how dramatically our headphones reduce noise, how clean and full the music sounds or how comfortably they fit. So we invite you to try them for 30 days, risk free. If you can live without them, return them for a full refund.

FREE Shipping when you order by March 31, 2005.

Call today and ask about our new payment plan, which allows you to use your own major credit card to make **low monthly payments,** with no interest charges from Bose.

QuietComfort® 2 headphones – the new standard from Bose, the most respected name in sound.

(Mr./Ms./Mrs.)
Name   *(Please Print)*
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Day Phone   Evening Phone
E-mail (Optional)
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